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# HEALTHY & WEALTHY

A GROWTH PRESCRIPTION FOR  
ONTARIO'S HEALTH INDUSTRIES

THE REPORT OF THE HEALTH INDUSTRIES ADVISORY COMMITTEE  
TO THE MINISTER OF HEALTH

MARCH 1994



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**The Honourable Ruth Grier  
Minister of Health  
10th Floor, Hepburn Block  
Queen's Park  
Toronto, Ontario  
M7A 3C4**

Dear Minister:

We are pleased to submit to you the final report of the Health Industries Advisory Committee.

This report is a critical first step toward the creation of a robust health industries sector in Ontario. Until the establishment of the Health Industries Advisory Committee, the various elements of the sector had never worked together on a set of common goals. This first collaboration has been a challenging, fascinating and rewarding process.

The members of the Advisory Committee are unified in the belief that the health industries sector offers a tremendous economic opportunity for Ontario. All of our studies, consultations, deliberations, and travels around the province only served to reinforce our belief that if we can capitalize on our existing strengths and improve the competitiveness of this sector, the potential for wealth creation is enormous.

We thank you for your leadership in undertaking this effort and, in particular, for the support from the government's Sector Partnership Fund that made the development of our sector strategy possible. The contribution of the sector itself came in the form of many, many hours of time devoted by a large number of busy people over the past several months.

*continued...*



In this report, you will find sound recommendations that together form an integrated strategy for the sector. Although we have finished our work, the process for this sector has only begun. We urge the government to act swiftly in responding to our action plan so that the enthusiasm and momentum this process has generated across the sector can continue. The health industries sector looks forward to working in partnership with Government to implement this strategy for the benefit of all Ontarians.



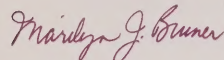
**William Blundell**, Chair  
Past Chair and CEO,  
General Electric Canada, and Chair,  
The Wellesley Hospital




**Jom Aw**  
Marketing Manager, Research and  
Biotechnology  
Fisher Scientific Ltd., and  
Chair, Ottawa-Carleton  
Bioscience Committee



**Mitchell Baran**  
Chair  
Trudell Medical Group



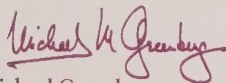
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President and CEO  
Markham Stouffville Hospital



**Glenn Buchanan**  
National Representative  
Communications, Energy and  
Paperworkers Union of Canada  
(Representing Ontario Federation of  
Labor)



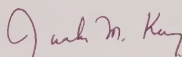
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Treasurer  
United Senior Citizens of Ontario



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Apotex Inc.



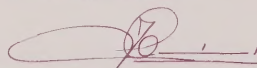
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Client Advocate  
The Hugh MacMillan Rehabilitation  
Centre



**Hans Kunov**  
Professor and Director  
Institute of Biomedical Engineering  
University of Toronto



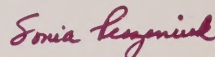
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President and CEO  
Astra-Pharma Inc.



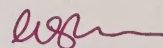
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Dean, Faculty of Business  
Ryerson Polytechnic University



**Sonia Peczeniuk**  
Assistant Executive Director, Nursing  
Sudbury General Hospital



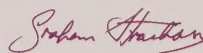
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Vice-President, Medical Research  
and Development  
Ortho-McNeil Inc.



**Edward Rygiel**  
President  
MDS Health Ventures Inc.



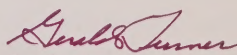
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Partner  
McMillan Binch



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President  
Livingston Healthcare Services Inc.



**Gerald Turner**  
President Emeritus  
Mount Sinai Hospital

## EXECUTIVE SUMMARY

**H**ealth care is one of the fastest-growing economic sectors in the world. The international market for pharmaceuticals and medical devices alone is more than \$300 billion and will reach at least \$500 billion by the end of the decade.

Other jurisdictions are working hard to bolster their health industries sectors to take advantage of the outstanding opportunity presented by the global boom in health products. To compete effectively, we must do the same.

The health industries sector, along with information technology, communications, and telecommunications, forms part of the “new economy.” This new economy is distinguished from the old by its greater reliance on skilled labor, advanced technology, and specialized products.

All sectors of the new economy are enjoying explosive growth internationally. Most important for all, these industries are creating highly paid jobs for highly skilled workers. The economic renewal of Ontario depends on our ability to create just such jobs. That is why we should target the health industries sector as a growth opportunity for Ontario.

We have good reason to focus on this sector. Ontario has an outstanding health care system and is an important centre of health research. It stands to reason that, by combining our talent in the health field with our proven strengths in advanced manufacturing, we can build a health industries sector that can take on the world.

This is not just an economic development goal but a health goal as well. Unemployment makes people sick. The physical and psychological stress associated with the plague of unemployment costs the country as a whole \$1 billion a year in extra health care costs, according to a recent study. To maintain a healthy society, we need a wealth-creating, job-creating economy.

The health industries have a pivotal role to play in making health care more affordable and more efficient. Companies that are successful in responding to changes in Ontario’s delivery system will be able to use their domestic success as a springboard to penetrate export markets where change will also bring new needs. In the process, our health industries sector will grow, thereby making an important contribution to economic renewal.

Ontario's health industries sector has four distinct parts – medical devices, pharmaceuticals, biotechnology, and private sector health services. The sector as a whole provides employment for more than 40,000 Ontarians. In 1991, the Canadian market for health care products, exclusive of health services, was \$7 billion or about 2% of the global market. Canada's production was \$5 billion, leaving a trade deficit of more than \$2 billion.

Obviously, a \$300-billion global market is more attractive than a \$7-billion

domestic market. If Ontario's health industries sector is to be a winner, that victory will take place in the vast global marketplace rather than the comparatively modest Canadian one.

An industrial policy would be superfluous if Ontario had a health industries sector characterized by the presence of strong companies with strong competitive advantages. But we do not have enough such companies and, without more of them, we can never hope to generate the export earnings upon which our economic renewal depends. In such an environment, a need exists for constructive, pragmatic action by government

together with industry and other

stakeholders to facilitate economic development.

The Health Industries Advisory Committee was set up in June of 1993 as a partnership of industry, labor, health care researchers and providers, and consumers. The overriding goal of our work has been to devise a strategy that would transform the Ontario health industries sector from a laggard to a leader in the global marketplace.

As our work proceeded, we identified the following key issues:

- *Our severe trade deficit in health care products is unacceptable. We have to do much better at exporting our products.*
- *Ontario companies have less than half the Ontario market for health care products. This too is unacceptable, not least because access to their own market is the springboard our companies need to launch them into global markets.*
- *We need a better working relationship between the research community and industry.*
- *We need a better investment environment as well as more knowledgeable venture capitalists.*
- *The sector must work more closely with educational institutions to ensure that more of our young people obtain the skills they need.*
- *Because the sector is fragmented, much work remains to be done to build a sense of common purpose among the various industries within it.*

To address these issues, the Advisory Committee developed three major thrusts. The first was a series of initiatives aimed at improving the infrastructure that serves the industry. These measures will create new relationships among the research and business communities and will give the sector improved access to the services and information it needs to stimulate rapid growth.

**“With our world-class research, excellent health care system, sound financial infrastructure, strong manufacturing base and educated workforce, Ontario has all the elements for a vital health industries sector. If we can bring these elements together, we will become major global players in the kind of high-technology industries that will sustain our economy well into the next century.”**

**B. BLUNDELL,  
ADVISORY COMMITTEE  
CHAIR**

The second thrust was to increase the availability of capital at all stages of development. Our proposals will benefit both the sector, because capital is its lifeblood, and investors who will have a chance to build a profitable stake in one of the fastest-growing parts of the new economy.

Finally, the committee focused on market access, looking at ways to topple the barriers that keep our companies out of their own home market and to improve our access to foreign markets.

If our strategy is implemented, we envision a health industries sector that, ten years hence, will be one of Ontario's major exporters. It will have at least six major, technology-driven health

products companies. These companies will do extensive R&D here in their home base; they will employ thousands of highly skilled, highly paid workers; and they will ship hundreds of millions of dollars worth of products around the world.

The Advisory Committee is firmly convinced that the health industries sector is an essential part of the high-skilled, high-wage economy we are building in Ontario. We have what it takes to be a winner in this industry. We have the people. We have the skill. We have the knowledge. We have the capital. To put it all together, we need only one more thing – the will to succeed.





## HEALTH INDUSTRIES ADVISORY COMMITTEE SUMMARY OF RECOMMENDATIONS

### THE SECTOR COUNCIL

- That an Ontario Health Industries Sector Council be created immediately by the Health Industries Advisory Committee to continue the sector building process and lead the implementation of the health industries strategy.
- That the Sector Council be a not-for-profit legal entity having representation from all parts of the sector and operating at arms-length from government.

### COMMUNITY HEALTH ECONOMIC DEVELOPMENT

- That the Sector Council work with the Ottawa Life Sciences Council and the London Healthcare Advisory Council to ensure that their initiatives are consistent with the provincial strategy and the requirements of the Sector Partnership Fund and to coordinate appropriate regional and provincial funding for their initiatives.
- That the Sector Council encourage other communities to create strategic plans for promoting the development of the health industries sector as part of their economic development plans.

### ONTARIO HEALTH RESEARCH COUNCIL

- That an Ontario Health Research Council be established to provide strategic direction for health research spending in Ontario and that the Ministry of Health address this need in collaboration with the Sector Council.

### HEALTH INDUSTRIES COMPETITIVENESS NETWORK

- That a Health Industries Competitiveness Network be established to stimulate sector growth by providing access to information and a wide range of services to the research, business, investment, and purchasing communities.
- That the Competitiveness Network initiative be implemented in phases, with pilot sites including Toronto, Ottawa and London. The Sector Council, working with local representatives of the sector, will coordinate the development, implementation and operation of the Competitiveness Network.

## REGIONAL TECHNOLOGY AND INNOVATION

- That a Regional Technology and Innovation Initiative be established to speed up and expand the transformation of research and innovation into development and manufacturing by forming efficient and effective technology linkages.
- That the Sector Council oversee the development, implementation and operation of the initiative, which will be closely tied to the Competitiveness Network and implemented in phases, with pilot sites including Toronto, Ottawa and London.

## HEALTH INFORMATION SYSTEM

- That a Health Information System be established to meet the information needs of the health industries sector.
- That the Health Information System initiative be coordinated by the Ottawa Life Sciences Council and undertaken by the Ottawa Life Sciences Informatics Centre.
- That the Ottawa council through the Informatics Centre at the Ottawa Life Sciences Technology Park:
  - develop an implementation strategy for the Health Information System and play the lead role in executing it;
  - put in place the physical infrastructure and programming; and
  - address the needs of consumers in the development of the Health Information System and consider the inclusion of USERNET.
- That the Ottawa Life Sciences Council liaise with the Sector Council to ensure that the sector's information needs are met by the Health Information System.

## EARLY-STAGE COMMERCIALIZATION FUND

- That an Early-Stage Commercialization Fund be created with the technical and investment expertise necessary to identify the most promising research projects with commercial potential and provide the capital needed to put such research on a fast track to the marketplace.
- That the fund work closely with the Regional Technology and Innovation Initiative in prospecting for innovative research, incorporating the knowledge and expertise available in communities where strong capabilities in the life sciences exist, such as London, Ottawa and Toronto.
- That the Sector Council select a “champion” with a supporting team to lead the development, implementation and operation of a strategy for the Early-Stage Commercialization Fund.

## EXPERT INVESTMENT CORPORATION

- That the Sector Council initiate the establishment of an Expert Investment Corporation (EIC) specializing in the health industries sector to be created under the Ontario Lead Investment Fund (OLIF).
- That the Sector Council take the lead in identifying appropriate sponsors within the sector to develop a proposal and approach the OLIF. Specifically, the council should:
  - establish communications with the Ontario Lead Investment Fund immediately;
  - ensure that a strong proposal for an Expert Investment Corporation is taken forward by appropriate industry sponsors and experienced investment professionals;
  - determine the feasibility of establishing the EIC with the capital support of several major health-related companies; and
  - discuss with the Ontario Medical Association its plans for a labor-sponsored venture capital fund and determine the compatibility of such a fund with either the Early-Stage Commercialization Fund or the EIC.

## MARKET ACCESS AND PROCUREMENT

- That providers (buyers) and insurers (payers) evaluate total, system-wide costs and benefits during procurement processes with a view to promoting greater participation by Ontario health industries companies.
- That the province support the development of a hospital procurement system based on the principles of removing market barriers for Ontario health industries companies, increasing employment, and reducing costs for the domestic industry and the hospitals.
- That the Sector Council take the lead in developing an institutional procurement system with concurrent goals of procurement reform and promoting the accelerated development of Ontario health industries.
- That the Sector Council examine appropriate mechanisms and lead a strategy to eliminate the practice of product bundling where it inhibits the participation of Ontario health industries in the health care market.
- That the Sector Council undertake extensive consultation with industry, publicly funded health care organizations, including hospitals and nursing homes, and other stakeholders to develop a means of measuring the true Canadian content of health products and services.
- That the Sector Council, in conjunction with trade associations and other stakeholders, lead the development of an on-line directory of Canadian and Ontario products and services that will provide purchasing managers of health care organizations with up-to-date information about domestic products, services and companies.
- That the Sector Council spearhead the creation of a pilot program to identify, assess and develop opportunities to compete more effectively in markets now served primarily by imports. In doing so, the focus should be on promoting the growth of globally competitive Ontario health industries.
- That the Sector Council develop mechanisms to increase the domestic market share of Ontario companies. In addition, that the council immediately initiate an aggressive campaign consisting of:
  - statements by the Minister of Health and other senior government officials stressing the importance of buying Ontario goods and services;
  - communication of the “Buy Ontario” message to purchasing managers and department heads;
  - urging hospitals and other institutions to establish and monitor voluntary targets; and
  - forums bringing key industry and health care decision-makers together.

## PHARMACEUTICAL ISSUES

- That Ontario take a lead role in promoting the development of a harmonized federal/provincial regulatory system.
- That, within a harmonized system, the federal government have the exclusive authority to evaluate the safety, efficacy, quality and interchangeability of a drug product.
- That the Sector Council assist industry and government to develop an improved process under the Ontario Drug Benefit program that is fair, stable, transparent, consultative and timely, and that incorporates economic impact assessments.
- That trade-offs between drugs and other treatments be evaluated on a system-wide basis and utilized in Ontario Drug Benefit decision-making processes. To facilitate this practice, national pharmacoeconomic guidelines need to be developed.

## EXPORT INITIATIVES

### SERVICES: INTERHEALTH

- That the province and Sector Council support the ongoing efforts to establish Interhealth.

### PRODUCTS: BROKERAGE COMPANIES

- That the Sector Council promote the establishment of several brokerage companies to help Ontario health industries to penetrate international markets. In the establishment of each brokerage company, the council will:
  - identify a product niche in which Ontario has existing strengths; and
  - group Ontario product companies together and, with Sector Partnership Fund support, hire a highly qualified senior person and staff to act as broker on their behalf.
- That the Sector Council develop a long-term export strategy to include, among other elements:
  - close ties between the service-exporting activities of Interhealth and product-exporting initiatives; and
  - a clear definition of access to markets, including establishment of a trading house(s) to represent the products of Ontario health industries.

## HUMAN RESOURCES

- That the Sector Council take the lead in developing a Human Resources Initiative that will:
  - identify training needs and facilitate the upgrading of health industries workers;
  - provide information from the Health Information System about all programs;
  - share recruitment information in the Health Information System;
  - create a specialty skills bank to be stored within the Health Information System;
  - project future human resources needs based on health care trends, including technology and epidemiology; and
  - foster movement of workers between the delivery system and the health industries.
- That, in order to ensure an adequate skills base for the health industries sector, the Sector Council undertake the following initiatives:
  - intensify and foster the partnerships and linkages that already exist between health industries and educational institutions;
  - encourage the development of multi-disciplinary programs to meet specific needs of the health industries; and
  - encourage one institution to take the lead in coordinating among all involved institutions the specialized education, training and upgrading programs required by the health industries sector.
- The Sector Council, in consultation with other sectors, educational institutions and the Ministry of Education and Training, encourage the development of new co-op, field placement and apprenticeship programs.

In particular, that the Sector Council take the lead in sponsoring, along with other industrial sectors, a public forum to allow industry to express its needs to the education community and government on formal education and lifelong learning.
- That, as part of its overall communications activities, the Sector Council develop and promote specific initiatives that will raise the profile of the health industries sector to students, parents, the education community, and members of industry.



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# INTRODUCTION

**H**ealth care is one of the fastest-growing economic sectors in the world. The international market for pharmaceuticals and medical devices alone is more than \$300 billion and will reach at least \$500 billion by the end of the decade. There is no reason why Canada, which is both a major trading nation and a leader in health care delivery and health research, cannot become an important player in this booming global business.

The Health Industries Advisory Committee is pleased to offer this hopeful prognosis at a time when the affordability of our health care system is of increasing concern. It would be tragic if Ontario were no longer able to support a system of quality health care. Our system of universal access to good health care is a vital public service. It is also an expression of fundamental national values of community and caring and, as such, has become an essential part of the Ontario identity.

The Advisory Committee's mandate is to enhance the ability of Ontario's health industries sector to compete in the global health care industry. When we succeed, the result will be more wealth creation in Ontario – and more wealth creation is what we must have if the people of Ontario are to be able to afford high-quality universal health care and other expensive public goods.

Ontario's health industries sector has four distinct parts – medical devices, pharmaceuticals, biotechnology, and private sector health services. The sector as a whole employs more than 40,000 Ontarians. That is good, but it is not good enough. This innovative, knowledge-based sector would provide high-paying jobs for a lot more of our people if Canada had a share of the world market for health products and services commensurate with its size and its stature as an advanced industrial economy. Because it does not have such a share, Canada suffers an annual trade deficit in medical devices and pharmaceuticals in excess of \$2 billion.

In the opinion of the Advisory Committee, this situation is far from satisfactory. The overriding goal of our work has been to devise a strategy that would transform the Ontario health industries sector from a laggard to a leader in the global marketplace. In the pages that follow, we first analyze the current state of the sector. Then we lay out a plan to get from where we are to where we want to be.

The exceptional opportunities offered by the global explosion in demand for health care products and services have not escaped the notice of other jurisdictions. Quebec, Alberta, British Columbia, Minnesota, California, Ireland and Australia are among those that have put strategies in place to improve their chances of success in the health care market. If Ontario is to compete effectively, we must do the same. And we must act immediately.

The Advisory Committee advocates an export-oriented, job-creating

strategy for the health industries sector in the firm belief that economic renewal and good health are inseparable. The old definition of health as simply the absence of disease was so narrow as to be unrealistic. That is why the Ontario Health Ministry has accepted as its own the World Health Organization's broader definition of health as "a state of physical, mental and social well-being."

Economic well-

being is fundamental to social well-being, a fact that explains why people with jobs tend to be healthier than those without. Ultimately, that is what the work of the Advisory Committee is all about – jobs for Ontarians.

Ontario health providers and consumers spend \$5 billion each year on goods and services, most of which are provided by the health industries sector. More than half of that amount is spent on imports. If we could spend more on products made by Ontario-based companies, we would create jobs at home. But we must set our sights much higher than that. The real action is in a global market that will be worth half a trillion dollars before the decade is out. Success in the domestic market should be viewed not as an end in itself but as a launching pad into the world beyond our borders.

Success abroad will translate into high-paying jobs for highly skilled workers at home. The economic renewal of Ontario depends on the creation of just such jobs. We must succeed in this endeavor because a society that fails to create good jobs for its people is not a healthy place to live. Prosperity is the indispensable link between industrial strategy and health reform strategy.

Discussion of health reform tends to focus on the issue of cost containment and on the perplexing problem of how an aging society can reduce health costs while still maintaining a high level of care for its people. The Advisory Committee views health reform from a different perspective. That is because many of our members come from the world of business. They are entrepreneurs and, as every entrepreneur knows, change is a synonym for opportunity.

**The province is creating an exciting framework of opportunities that will enable each and every participant in the health industries sector to position itself as a major player nationally and globally.**

– J. AW

In January 1992, the Ontario government announced an extensive health reform agenda. Key items on this agenda include:

- *A review of major programs in such high-cost areas as hospitals, laboratory services, and drug benefits.*
- *Linking hospitals more closely to other forms of health care.*
- *Development of community-based services.*
- *Increased consumer input into decision making.*
- *Health economic development.*

The result of this effort will be nothing less than a restructuring of our health care system with a view to eliminating waste, ensuring equity, and maintaining quality of care. It is not surprising that this should be taking place. On the contrary, it would be astonishing were health care delivery to remain isolated from the transformation of the global economy that is now in progress. Just as industry in Ontario and elsewhere is restructuring to remain competitive, so must our health care system.

The health industries have a pivotal role to play in making health care more affordable and more efficient. The downsizing of the institutional sector, the movement of goods and services to the home or community setting, the need for new health promotion techniques, the demand for cost-effective technologies – all of these trends demand action by the health industries sector.

Companies working in such areas as home diagnostics, home treatment, and patient-monitoring will enjoy new demand for their products. Great potential also exists for assistive devices that can give people independence and lessen the need for institutional care.

Restructuring is occurring faster in Ontario than in many other jurisdictions. This rapid pace of change gives a competitive advantage to firms that can meet the new requirements of the health care system. Companies that are successful in responding to changes in Ontario will be able to use their domestic success

as a springboard to penetrate export markets where change will also bring new needs. In the process, our health industries sector will grow, thereby making an important contribution to economic renewal.

A robust health industries sector should be seen as a natural outgrowth of Ontario's strength as an important centre of health research. Our scientists are among the leaders in investigating such major global

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IS WHAT THE WORK  
OF THE ADVISORY  
COMMITTEE IS ALL  
ABOUT – JOBS FOR  
ONTARIANS.**  
● ● ●

health problems as cancer, cardiovascular disease, neurological disorders, diabetes and immune-mediated disorders. As well, Ontario is a leader in such key areas as health promotion and disease prevention, pharmacoeconomics and outcome evaluation. This leading-edge health research attracts strong support from government and community alike and provides a solid foundation upon which to build a world-class health industries sector.

Achieving consensus on a strategy was a challenge because the health industries

sector is so fragmented that many of the people working within it have never met face to face. They tend to think of themselves as working in the pharmaceutical, medical devices, biotechnology or private health services industries rather than in a much larger health industries sector. The formation of the Health Industries Advisory Committee in June of 1993 was an historic

event for the sector because it was the first time leaders from the various industries that comprise it had been brought together.

To begin the process of building a sense of common purpose, the Advisory Committee created four working groups to focus on the following areas of strategic importance:

- *Domestic market opportunities.*
- *Research and innovation.*
- *Capital availability and investment.*
- *International capabilities.*

All four working groups met on a regular basis through the last half of 1993 and some of them spun off subcommittees of their own to deal with a wide variety of complex and difficult issues. Debate was often lively, as was to be expected given the diverse backgrounds of the participants. The Advisory Committee and its working groups were a partnership of big business and small business, labor and management, producers of generic drugs and producers of brand-name drugs, health researchers, health care providers, and health care consumers.

In November, more than 100 people gathered at a Health Industries Workshop in Toronto to discuss and debate how best to stimulate growth in the sector. Similar events were held later in November in Sudbury, Ottawa and London. In January, a group of health care consumers met to add their insights to the strategic development process. Meanwhile, members of the London Healthcare Advisory Council and the Ottawa Life Sciences Council were working on strategies aimed at bolstering the health industries in their regions.

**The enthusiastic and unselfish contribution of everyone involved in the HIAC deliberations has given significant credence to the initiatives being proposed.**

— M. BARAN

In all, 500 senior people in the health industries sector contributed to the work of the Advisory Committee, taking part in 61 meetings held under the committee's auspices over a period of six months.

Just as the health industries sector does not operate in isolation from the economy as a whole, the work of the Advisory Committee did not take place in isolation from that of the committees working on strategies for other sectors. To avoid duplication of effort, we established close ties with the committees for the two sectors, computing and biotechnology, whose work touched on the health industries. As a result, the biotechnology sector committee, chaired by one of our own members, will have sole responsibility for making recommendations on the health aspects of biotechnology.

In addition, several people involved in the computing sector strategy also served on our committee's working groups. Because the issue of health informatics has already been studied by the Advisory Committee on a Computing Strategy, we did not dwell on it.

Finally, at the staff level, experts from the Ministry of Economic Development and Trade assisted our various working groups.

At the end of the year, each of the four sub-committees came up with a set of recommendations. Despite the different focus that had been assigned to each group, many of the recommendations overlapped. It was the Advisory Committee's job to assemble them into the plan offered in Chapter Two of this report.

When Canadian business goes abroad to sell health care products, it benefits from Canada's excellent reputation in both health care delivery and health science. The accomplishments of such great physicians as Robert McClure, Norman Bethune, and William Osler have won international renown. So have those of such researchers as Frederick Banting, Charles Best, and J.J.R. Macleod, the discoverers of insulin, and, more recently, Tak Mak who discovered the gene that is the key to the immune system, Lap Chee Tsui who discovered the cystic fibrosis gene, and Robert Pilliar who developed a world-renowned porous surface coating to promote bone ingrowth.

The primary purpose of health research is not to achieve financial gain but to combat disease and to improve quality of life. But where opportunities arise, we must do better at capitalizing on the wealth-creating possibilities of successful research and innovation. While some companies have performed impressively, our total share of the world market is inadequate.

Canada's relatively small population in no way justifies this situation. Canada consistently ranks among the top ten exporting nations. Our export success in telecommunications and transportation equipment testifies to our skill in advanced manufacturing. As for population, Ontario's alone is greater by a third than that of Switzerland, a country whose multinational companies have a major part of the world trade in pharmaceutical products.

In Chapter One, we will describe the strengths that now exist in our health industries sector and the opportunities for building on those strengths. We will also examine the reasons why our health industries are not yet flourishing to the extent we think they should be. In Chapter Two, we will offer some specific advice as to what should be done about it.

The Advisory Committee presents this report as a wake-up call. The global boom in health care products offers outstanding opportunities for innovative and aggressive Ontario companies. For the sake of the good health of Ontario and its people, we cannot afford to let those opportunities pass us by.

## CHAPTER ONE

# BACKGROUND

### THE NEW ECONOMY: HIGH VALUE-ADDED JOBS, INNOVATION, GLOBAL COMPETITION

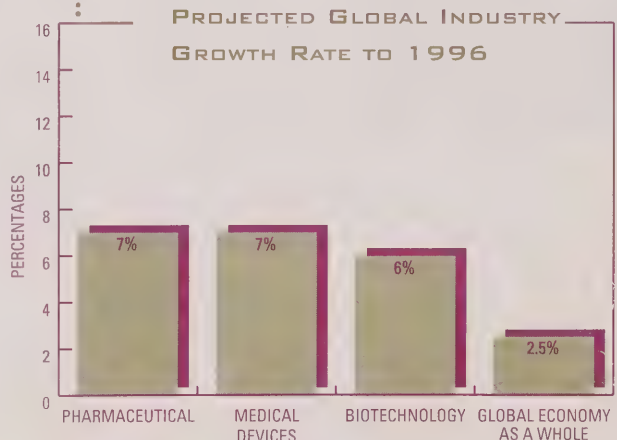
**W**atching events unfold in the last decade of the 20th century is like watching a video-tape in fast forward. Economies, political systems, technologies – all are changing with staggering rapidity.

This process of transformation is creating a “new economy.” Companies that succeed on the playing fields of this new economy share certain characteristics: they depend on intellectual resources rather than physical ones. They exploit the latest technology rather than clinging to older ones. They rely on skilled workers rather than unskilled ones. They make specialized products for niche markets rather than commoditized products for mass markets.

The health industries sector, along with the information technology, communications and telecommunications sectors, is part of the new economy. All of these sectors have enjoyed explosive growth internationally and it is within them that Ontario can create the new, high-paying jobs it needs.

To put the future of the health industries sector in context, it is useful to remind ourselves of the breadth and depth of the transformation that is reshaping the way the world works. Here are some of its characteristics:

- *Technological change is more rapid and far-reaching than ever before in human history.*
- *Improved communications and free trade agreements are leading to increased trade and reducing the importance of national boundaries.*
- *The emphasis in industry is shifting from manufacturing to services.*
- *Corporate management structures are being flattened.*



- Employees are experiencing diminished job security and increased anxiety about the future.
- Unemployment is affecting managerial and professional workers previously immune to it.
- Because new jobs are knowledge-based, fewer people are qualified for them. This requires a new emphasis on lifelong training.
- Competitiveness is increasingly based on innovation.
- Increased competition has empowered

consumers and jeopardized companies that fail to deliver the value consumers expect.

- Natural resources are no longer sufficient to assure prosperity.

The last factor is of particular relevance to Canada because the excellent standard of living we enjoy is largely the result of our ability to exploit our plentiful resources. But we are not as rich as we used to be because our nat-

ural resources are not as highly valued by the rest of the world as they once were. And so, to main-

tain our prosperity, we must rely less on trees, minerals, and wheat and more on knowledge, creativity, and productivity.

These are the attributes through which human intervention adds value to raw materials. For example, silicon on a beach in the form of sand has no value. But when the same silicon is inside a computer, as a result of human intervention, it is valuable. People who have the ability to create substantial value where none existed before occupy what we call "high value-added jobs." Jobs within high-technology, high-growth industries tend to be high value-added.

In our era, technological change is the major engine of economic improvement. It is through a process of continuous innovation, leading to technological change, that value is added to raw materials and wealth creation takes place. Government can help to support conditions that allow innovation to flourish.

Other countries are proceeding in just this fashion, with the result that our firms will face increasingly rigorous competition from foreign competitors. They will face this competition at a time when cost-containment measures may reduce their domestic sales. In such circumstances, Ontario companies must adopt continuous improvement and innovation as a way of life in order to survive. Because of globalization, these companies must work harder and smarter. At the same time, by opening vast markets, globalization creates the possibility of rapid expansion for Ontario-based firms.

"Ontario health industries provide an environment for the creation of the high-value, knowledge-based jobs of the future. We must protect our ability to create these jobs by an appropriate combination of public policy and private sector initiatives."

L. RUSS

## THE INDUSTRIAL POLICY FRAMEWORK: RATIONALE FOR THE SECTOR APPROACH

**A**n industrial policy would be superfluous if Ontario had a health industries sector comparable to those of the United States and Switzerland, characterized by the presence of strong companies with strong competitive advantages. But we do not have enough such companies and, without more of them, we can never hope to generate the export earnings upon which our economic renewal depends. In such an environment, a need exists for constructive, pragmatic action by government together with industry and other stakeholders to facilitate economic development.

But government must not lose sight of the goal of such intervention. That goal is wealth and job creation, and it cannot be achieved by policies that seek to sustain firms incapable of meeting contemporary standards of global competitiveness. Industrial policy succeeds by creating the conditions for economic growth, conditions that lead to the establishment of profitable companies that can hold their own against the best in the rest of the world.

Canadians, as we have already said, are good at health science. For that reason, a strong case exists for targeting the health industries sector as one in which Ontario can make a mark in the global economy. The “sectoral approach” to economic development is tailor-made for the health industries. This approach stems from the six “competitive fundamentals” underlying the success of companies within the new economy.

These are:

- *continuous innovation*
- *raising skill levels*
- *increasing technological capacity*
- *establishing home-based activities*
- *developing linkages and networks*
- *building international capabilities*

The Ontario health industries sector is fragmented, with a few medium-sized companies and many small ones. Individual firms acting in isolation lack the strength to put these competitive fundamentals in place. The sectoral approach encourages stakeholders to address common problems and opportunities by working together and identifying joint solutions.

This approach is in line with trends in other advanced economies. In another industry, an outstanding example of the sectoral approach in action is Sematech, of Austin, Texas, a consortium of 11 semiconductor companies and the Advanced Research Projects Agency of the U.S. Department of Defence. Since its creation in 1987, Sematech has focused mainly on the links between the semiconductor and equipment industries, providing centralized development, certification and quality programs, as well as academic research programs.

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PRODUCTIVITY.**  
● ● ●

In 1992, the U.S. won a larger share of the world market than Japan for the first time since 1985, and U.S. firms took leading positions in both the semiconductor and equipment markets. Industry observers believe Sematech deserves much of the credit for this resurgence.

In a recent article in the *California Management Review*, William Spencer and Peter Grindley offer a rationale for such joint action by players within a sector in cooperation with government. They write that rapid technological change coupled with high R&D costs gives “a strong incentive to cooperate in non-competitive infrastructure technology and manufacturing methods. The high costs, global competition, and market growth are arguments for public-private cooperation. In other words, there are societal benefits broader than any single corporate investment would warrant.”

We believe this analysis has relevance for other high-tech, research-based economic sectors, including the health industries.

However, sectoral action need not be as formalized as in the case of Sematech. In Japan, for example, relationships among firms in the same sector are no longer only competitive. Because manufacturers increasingly rely on outside suppliers, the need for coordination and cooperation is greater. As well, customers are viewed not only as buyers but, through their feedback, as an important quality control mechanism.

This approach to economic development involves a new idea of competitiveness that is a fundamental characteristic of the new economy. In the “old economy,” companies obtain competitive advantage either by increasing output or reducing the cost of inputs into the production process. The new concept, in contrast, involves a cumulative pattern of learning within individual firms, across industrial sectors, and across society.

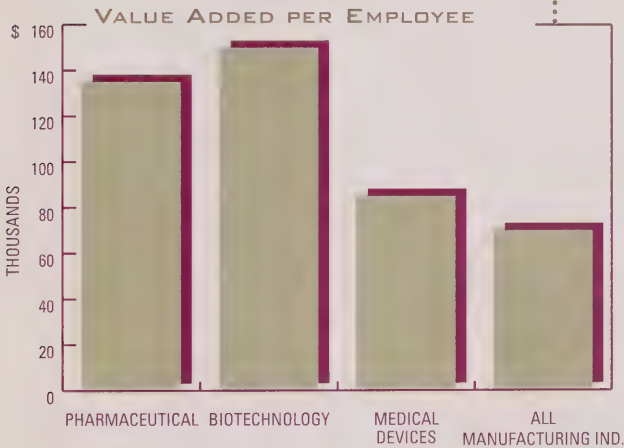
In support of this approach, the Ontario government has created the Sector Partnership Fund (SPF), which will provide \$150 million (across all sectors) to approved projects and initiatives that strengthen the competitive fundamentals and promote sector development.

**“To meet the challenges presented by increasingly complex and rapidly changing technological and trade environments, firms need to actively seek out partnerships and alliances, particularly between firms at different stages of evolution and also between companies, research institutions, the investment community and government.”**

**— G. STRACHAN**

## THE ONTARIO HEALTH INDUSTRIES SECTOR: CURRENT CONDITION, STRENGTHS, WEAKNESSES OPPORTUNITIES, THREATS

**T**alvest Fund Management Inc. recently launched a Canadian equity mutual fund, known as “the New Economy Fund,” based on the research of Canadian economist Nuala Beck. The new fund will invest in four industries that share the “new economy” characteristics we described at the beginning of this chapter. One of them is the health industries sector.



The hallmarks of the new economy – skilled labor, advanced technology, specialized products – are key attributes of the health industries sector. Health companies have something else in common with their new economy cousins – they are footloose. Because they do not depend on proximity to resources, they can move if they find themselves in an inhospitable environment.

The health industries sector produces a wide array of products and services. It comprises four areas: medical devices, pharmaceuticals, biotechnology and private sector health services. In 1991, the yearly Canadian market for health care products, exclusive of health services, was \$7 billion, or about 2% of the global market. Canada’s production was \$5 billion, leaving a trade deficit of more than \$2 billion. Obviously, a \$300-billion global market is more attractive than a \$7-billion domestic market. If Ontario’s health industry is to be a winner, that victory will take place in the vast global marketplace rather than the comparatively modest Canadian one.

In most countries, continued growth is inevitable. Economic studies have shown that as incomes increase, expenditures on health increase at a faster rate. As a result, demand for health goods and services will increase rapidly in the developing economies of eastern Europe and Asia. In the rich nations, population aging and the development of new technologies will ensure continued demand for the products and services of the health industries sector.

Ontario’s health industries firms produced \$3.7 billion worth of goods and services annually in 1991-92, more than 50% of total Canadian production. By way of comparison, another “new economy” industry, telecommunications, produced \$6 billion worth of equipment and software in Ontario in 1992.

## HEALTH INDUSTRIES SECTOR PROFILE

	Medical Devices	Pharmaceuticals	Biotechnology (Health Only)	Health Services (Private)	Total Sector	Health Care Delivery (Public)
<b>Global Market</b> (millions)	\$ 86,000	\$ 226,000	\$ 7,700		\$ 319,700	
<b>Subsectors</b>	Assistive Devices, Diagnostic, Hospital Equipment, Implants, Med. Imaging, Med./Surg. Supply	Brand Name, Generic	Biopharmaceuticals, Vaccines	Laboratories, Consulting, Environment Mgt., Support Services, Third Party Payers, Distributors, Retailers, etc.		Institutions, Community and Public Health Agencies, Independent Practitioners
<b>Canadian Market</b> (Consumption) (millions)	\$ 2,594	\$ 4,642	\$ 300		\$ 7,536	
<b>Ontario Industry Structure</b>	Approx. 400 firms; many small firms and a few dominant multinationals	40 brand-name MN's, generic, over-the-counter	many small, mid-sized Canadian Companies	many small firms, with a few large MN's with Ontario bases		
<b>Ontario Market</b> (Consumption) (millions)	\$ 987	\$ 1,856	\$ 100		\$ 2,943	\$ 18B
<b>Ontario Production</b> (millions)	\$ 717	\$ 1,973	\$ 200	\$ 800	\$ 3,690*	
<b>Export Sales</b> (millions)	\$ 212	\$ 126	\$ 50		\$ 388	
<b>Domestic Sales</b> (Canada – Incl. Ont.) (millions)	\$ 505	\$ 1,847	\$ 150		\$ 2,502	
<b>Employment (Ontario)</b> (people)	12,000	11,000	4,000	16,000	43,000*	263,000
<b>Approx. Value Added per Employee</b>	\$ 84,620	\$ 133,345	\$ 150,000			
<b>Number of Firms</b> (Ontario)	400 Approx.	63	65		528 Approx.	

1. Medical Devices figures apply to 1992. Figures are derived from:

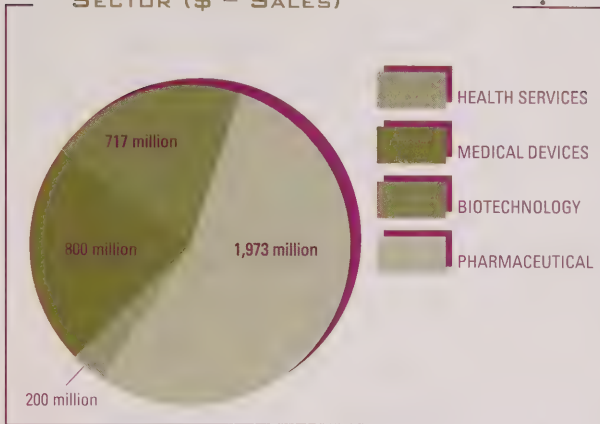
- *The Health Industries Manufacturers Association's "Global Medical Device Market Report," 1992*
- *Stratquest's "Ontario Medical Devices Market," prepared for MEDEC and the Health Economic Development Office, 1993.*

2. Pharmaceutical Figures apply to 1991. Figures are derived from Statistics Canada sources and the Pharmaceutical Manufacturers Association of Canada.

3. Figures for Biotechnology and Health Services are gross approximations for 1992. Activity based on expert opinion as accurate data unavailable.

\* Includes private health services industry estimates.

## ONTARIO HEALTH INDUSTRIES SECTOR (\$ - SALES)



What are the strengths of our health industries sector? It is based on strong, internationally respected health research. It benefits from a well-educated workforce and from its relationship to a first-rate delivery system. It has a large number of small, innovative companies poised for growth. And it is next door to the United States, which represents half the global market for health products.

The sector, taken as a whole, also suffers from certain general weaknesses. These include a research base that is not well connected to industry, a lack of economies of scale and critical mass, a scarcity of venture capital, a shortage of market intelligence, a complex regulatory environment, a poorly developed export orientation, and inexperience in global marketplaces.

Opportunities to exploit? They include changes in the health care market driven by demographic and economic considerations, growth in the global market, the chance to develop world-class competitive clusters, and the need to

develop cost-effective and specialized products and services for global niche markets.

Finally, several threats make life difficult for the health industry. These include the increasingly price-driven nature of competition, rationalization of production on a global basis, the difficult regulatory environment in Canada, the limited mandate of multinationals for corporate R&D in Ontario, and a shortage of export expertise.

The following sections examine in more detail the current condition of the four segments of the health industries sector.

### MEDICAL DEVICES AND TECHNOLOGIES

This category includes assistive devices, diagnostic equipment, implants, medical imaging therapy, hospital equipment, and medical-surgical supplies. It encompasses a vast assortment of products, from such low-tech products as tongue depressors to such medium-tech items as wheelchairs to such advanced technology as magnetic resonance imaging and ultrasound equipment.

Canada suffers the dubious distinction of having the largest trade deficit in medical devices in the industrialized world.

The global market is huge – about \$86 billion – and has been growing at a rate of 7% a year.

Although health care reform has produced some uncertainty, the sector is expected to continue to grow at this rate for at least the next two years, almost triple the growth rate of the world economy as a whole. The Canadian market in 1991 was

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worth about \$2.6 billion, of which imports accounted for \$1.6 billion. Canadian production was estimated at \$1.3 billion with \$240 million exported, leaving a trade deficit of about \$1.3 billion. Germany, by contrast, enjoyed a trade surplus in medical products of \$1.6 billion.

The world medical devices industry includes a few large multinational firms with global reach and a great many smaller ones with regional or national reach. Change, driven by globalization of both production and procurement, is relentless. Heavy

competition is wiping out inefficient small-scale plants and forcing rationalization of manufacturing operations.

The Canadian medical devices industry includes about 800 companies. The average firm has less than \$1 million in sales and fewer than 20 employees. Total employment is about 20,000, including about 12,000 in Ontario.

Those 800 firms comprise 100 affiliates of foreign-owned multinationals and about 700 Canadian companies. About half of the firms are located in Ontario. The multinationals generally have neither

continental nor world product mandates. As a result, most exports are by Canadian-owned firms.

Managers of medical devices branch plants in Ontario are under increasing pressure to justify the existence of these operations. The future for a plant that is manufacturing for the Canadian market alone is dim. Furthermore, it is highly unlikely, given the province's relatively high cost structure, that an Ontario-based operation can compete globally in commoditized products. Yet these multinationals do little research and development in Canada. If they did more, they would be better able to develop the advanced products needed to capture the world mandates that would ensure their future.

Many multinationals, while large and important contributors to the economy, are nearing the end of their product life cycles. This has led to the closure of some branch plant operations and a reduction in the multinationals' share of Canadian production.

The character of the Canadian-owned portion of the industry is in stark contrast to that of the branch plant segment. Many of the Canadian companies are recent startups with high-tech or innovative products. Unlike the multinationals, which are concentrated in Ontario and Quebec, many of these embryonic companies are located in western Canada. Their owners, realizing that the Canadian market alone is not large enough to assure long-term success with niche products, are attempting to become exporters. They share with the multinational segment, however, one important characteristic: their future is far from assured.

The Ontario market for medical devices is about \$1 billion. Until 1991, this market was growing at a rate of 7% to 8% a year. It has not grown in the past two years. About 75% of sales are to hospitals with the rest to long-term care

**"Independent, research-based firms that support the global pharmaceutical, medical device and biotechnology industries are an important contributor to the strength of the health industries sector. Along with sustainable growth, they provide value-added jobs and, importantly, innovative technology and products for export."**

**— J. OUDENES**

facilities, doctors' offices, and consumers. Of this \$1 billion in sales, only 22% is supplied by Ontario companies. The rest is imported, mainly from the United States. Ontario production was about \$700 million in 1991.

The Ontario market for medical devices is influenced by several broad trends affecting all of the industrialized countries:

- *A decline in hospital funding is driving demand for more cost-effective equipment and cost-effective approaches.*
- *The gradual rise in the population's average age is increasing demand for medical products and technologies, especially for such specific categories as implantable devices or such assistive devices as scooters, walkers, wheelchairs and neck aids.*
- *Increasingly sophisticated and costly technologies are being introduced.*
- *Major disease categories, such as cardiovascular disease and cancer, are boosting demand for specific categories of equipment.*

In finding its way in this environment, Ontario's medical devices industry will rely on certain basic strengths. These include an innovative research sector and a variety of early growth firms. The health care system is in the midst of major change occasioned by the drive for cost containment, demographic shifts, and technological advances.

The medical devices industry is also affected, both domestically and internationally, by regulatory changes, including the introduction of the ISO 9000 series of standards. These changes offer attractive opportunities to companies nimble enough to seize them. The danger, from the perspective of the industry as a whole, is that

embryonic firms will not enter the growth stage quickly enough to replace the branch plants that close up shop in Ontario because of failure to capture world product mandates.

STRENGTHS

- *Good industrial infrastructure in place.*
- *Strong, long-term global growth.*
- *High quality, cost-competitive, research infrastructure.*
- *Multinationals have established infrastructure.*
- *Many embryonic startups.*
- *Many candidates for diversification into the sector.*
- *\$18 billion in public spending on health care could be used as lever to strengthen the domestic industry.*
- *Several communities with potential to become strong clusters of health sector economic activity.*

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WEAKNESSES

- *Many multinational subsidiaries have aging plants and short production runs, making them good candidates for extinction.*
- *Weak linkages between industry and the research and financial communities.*
- *Other parts of Canada more aggressive in trying to attract industry.*
- *Venture capital is scarce for small companies.*

## OPPORTUNITIES

- *Aging of population.*
- *Need for cost containment.*
- *Shift to home care.*
- *Introduction of information technology.*
- *Imports of \$1.6 billion present large opportunity for import replacement.*
- *Improvements in quality and manufacturing.*
- *Better cooperation with research community.*
- *Some branch plants could capture world product mandates.*
- *National or interprovincial collaboration could create world-scale operations.*

## THREATS

- *Global trend to rationalization of multinationals could lead to further shrinkage in Ontario.*
- *Slow growth of exports by embryonic firms may erode confidence in medical devices sector.*
- *Firms built on intellectual assets may continue to have difficulty attracting investment.*
- *Cost-containment measures may defer public investment in expensive diagnostic equipment.*

## PHARMACEUTICAL AND RELATED PRODUCTS

This category includes manufacturers of medicines in final dosage form, both prescription and over-the-counter, as well as those that develop and manufacture active pharmaceutical ingredients.

Global sales are estimated at more than \$200 billion in a market dominated by large, multinational firms. These firms place most of their research, development and production either close to their head offices or in large markets. While the global pharmaceutical market enjoys steady growth, constraints to that growth are of increasing importance. These include a growing preoccupation with cost containment in all the industrialized countries, the impact of big buying groups, and intensified competition. Heavy competition and a global oversupply of production capacity is resulting in a rationalization of manufacturing operations.

Canadian pharmaceutical sales have shown consistent growth, with an average annual increase of 14% between 1982 and 1992. However, between 1991 and 1992 the growth rate declined to 9% and the nationwide drive for cost containment may reduce the rate of increase still further. Sales in 1991 in Canada reached \$4.6 billion.

The Ontario market is estimated at \$1.8 billion, while its production is \$1.9 billion. The province's relative share of Canadian pharmaceutical shipments has been declining slightly. Ontario firms accounted for 52.4% of shipments in 1990, compared to 55.3% in 1986.

The industry employs 11,000 people in Ontario, representing 55% of the national total. However, employment growth in Ontario has averaged only 1.5% since 1986, compared to a 3.3% growth rate for the country as a whole.

As a knowledge-based industry, the pharmaceutical business relies heavily on research and development of new products, to which it devotes about 10% of its sales. Here too, however, Ontario is losing ground because R&D spending is rising more quickly in Quebec and other provinces.

The education levels of workers in this research-intensive industry are relatively high. Of the 9,159 people employed by members of the Pharmaceutical Manufacturers of Canada (PMAC), the trade association of the brand-name manufacturers, about 70% have university training.

The brand-name and generic drug manufacturers are two distinct sectors of the pharmaceutical industry. The brand-name sector invents new medicines while the generic sector produces equivalents of medicines whose patents have expired. Brand-name companies compete on a basis of innovation while generic companies compete on price. Most brand-name firms are foreign-owned while generic firms are Canadian-owned. The brand-name industry has been experiencing a period of transition, marked by rationalization of production, restructuring of companies, reduced returns, and lower share prices.

Developing a new drug is an arduous and time-consuming process of research, development, testing, and obtaining regulatory approvals. Thousands of compounds are studied to bring just one to market. This work takes about 12 years and costs an estimated \$360 million. Of the products that do get to market, only three out of ten recoup their development costs. Clearly, this

business is global by its very nature because no single market is big enough to provide sufficient return on such high-risk R&D.

Generic firms account for about 10% of drug sales in Canada; two large companies have 90% of those sales between them. Because they do not have to invent their own products, these companies can sell drugs more cheaply than brand-name firms. Brand-name manufacturers market their products vigorously during their patent life but may stop promoting them once the patents have expired and price becomes the only competitive tool. Recent changes to the Canadian Patent Act eliminated compulsory licensing and extended patent protection for new products.

The two largest generic firms reported spending 11% of their sales on R&D in 1991, indicating they are now beginning to develop new products. The high cost both of developing new drugs and of setting up a system to market them to more than 50,000 active prescribing physicians in Canada will present a difficult challenge to generic firms attempting to enter the innovative pharmaceutical sector.

**“Large corporations, particularly those in a high technology growth sector, are vital to the future growth of Ontario. Their investments and collaboration with academia will help create the world class skills vital for success in today’s competitive global market place.”**

**G. McDOLÉ**

The fine chemical industry is an important component of the pharmaceuticals industry and one with significant potential, both domestically and in export markets. As new pharmaceutical substances become ever more complex, this industry is increasingly driven by innovation.

For the pharmaceutical sector as a whole, the outlook is mixed. The pharmaceutical market is not as vulnerable as some to economic cycles. Population aging ensures that it will continue to grow. Moreover, in an era of cost containment, the industry argues forcefully that its products are more cost-effective than other therapies. Drugs, for example, have replaced surgery for ulcers and institutionalization for schizophrenia. There is a strong feeling in the industry that the true “net” benefit of drugs to the system is not being measured, and that the focus is on the selling price.

Ontario has a solid research infrastructure and an excellent health care system that facilitates clinical study. These factors give Canadian subsidiaries of multinational firms the possibility of strengthening their links to the research community as they live up to their obligations to increase R&D spending in exchange for the increased patent protection they received from the federal government.

The Canadian industry, however, suffers from certain fundamental weaknesses. Many of its production facilities are labor-intensive. Most production runs are short, with many plants operating on only one shift. The Canadian branch plants produce mainly for the domestic market, with the result that the Canadian pharmaceutical industry is a weak exporter. Exports as a percentage of shipments has been declining in recent years leaving a negative, and worsening, trade balance of \$848 million.

The most serious weakness, from the industry’s perspective, is in its relationships with government. The industry would like to be respected as an important contributor to Ontario’s economy, a provider of value-added jobs, and a mainstay of the health care system. Instead, it sees itself as having to contend with a complex regulatory environment and arbitrary cost-containment measures. In contrast, the neighboring province of Quebec is seen as more hospitable to the industry.

Federal and interprovincial regulatory duplication also complicate domestic market operations. This duplication, a result of the involvement of two levels of government in the approval process, impedes the development of the pharmaceutical industry in Canada. A less complex regulatory process, in the eyes of head office decision-makers, would make Canada a more attractive place in which to invest.

## STRENGTHS

- Strong rate of global growth.
- Good management.
- Widely recognized benefits, including development of new therapies for disease, some of which result in avoidance of expensive, invasive treatments.
- Ontario's industry is largest in Canada.
- Large generic firms are expanding.
- Strong brand-name industry invests in clinical research and has some manufacturing mandates.
- Expertise in short-run production.
- Good scientific research infrastructure.
- Good health care system facilitates clinical research.

## WEAKNESSES

- Brand name companies facing intensified competition and price pressures.
- Vertical integration of brand name companies restricts their export potential.
- Export opportunities of generic sector limited by patent restrictions, intense price competition, and non-tariff barriers.
- Venture capital scarce for small companies.
- Poor links between industry and researchers.
- Fewer independent research laboratories than in Quebec.
- Excessive regulatory delays.
- Restrictions on market access.
- Western Canada offers lower costs to pharmaceutical manufacturers.
- Quebec and Manitoba are more aggressive than Ontario in seeking investment.
- Ontario is viewed as an inhospitable environment by some industry leaders.

## OPPORTUNITIES

- Aging population boosts demand.
- Possibility of investment by Japanese companies.
- More cooperation between industry and the research community.
- Potential for a comprehensive strategy to help Canadian branch plants develop the research side of their business.
- Potential for expanded basic and applied research as a result of recent changes to federal legislation.
- Potential under North American Free Trade Agreement for brand-name firms to supply lower-volume production for multinational needs, especially of over-the-counter products.
- Potential to collaborate in national development activities with other provinces.
- Creation of spinoff industries, including fine chemicals.

## THREATS

- Global trend to rationalization of multinational brand-name firms.
- Intense price competition shrinks new investment.
- Hiatus in major new products from brand name companies may diminish their potential for growth.
- International trend to extend market exclusivity and patent protection delays access to markets by generics.
- Governments trying to reduce health care funding, including spending on drugs.
- Brand-name industry may lose market share through removal of benefit designations in some categories, and more stringent cost-effectiveness criteria.

## BIOTECHNOLOGY

Biotechnology is a segment of the health industries sector that is still in its infancy. Biotechnology companies do research and develop products through the application of biological processes, the use of naturally occurring micro-organisms, and gene manipulation.

Although still small in scale, biotechnology has enormous potential for growth. The current world market for biopharmaceuticals and vac-



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ESTIMATED AT  
\$7.7 BILLION.**



in addition to the health care field, biotechnology is also a growing force in the chemical, agricultural, and forestry industries.

In 1991, Canada had 290 biotechnology companies, of which 78 were involved in health care products. Most of these are in the embryonic stage, with fewer than 10 employees and less than \$1 million in annual sales. By comparison with the U.S., where biotechnology is farther

cines alone is estimated at \$7.7 billion. A huge international research effort is now in progress and, although the development process is long, the number of products ready for market is growing steadily. By the turn of the century, biotechnology is expected to account for 20% of all pharmaceutical products. In addition to the health

advanced, Canadian firms tend to be smaller and less well-funded. On the positive side, Canadian firms are more export-oriented than U.S. ones and benefit from good domestic research.

Ontario, with 42% of the Canadian industry, has a diversified and powerful scientific base. This includes 12 of the national centres of excellence in health-related technologies and six federal government health research centres, including the National Research Council biological sciences division. One-third of the Ontario biotechnology industry is devoted to health care.

Although accurate figures are unavailable, Ontario production has been estimated at \$200 million, of which \$50 million is exported. The Ontario market is estimated at \$100 million.

Capital requirements for bringing a product successfully to market are enormous. To obtain the necessary resources, companies are entering into acquisitions, partnerships, and strategic alliances, including linkages with pharmaceutical companies. In this way, they are obtaining financial depth and marketing networks before their key products have completed the development stage.

Biotechnology companies in the health business spend an average of more than \$3 million per year on R&D, of which 24% is government-funded. This is three times as much as biotech companies working in agriculture, which are the second-highest R&D spenders. Alliances are particularly important, involving 94% of firms in health care biotechnology. Ontario companies are collaborating with their counterparts in the U.S., the European Community and Japan.

## STRENGTHS

- *Rapid global growth and extraordinary potential.*
- *Good domestic demand for biotechnology products.*
- *Many start-up companies.*
- *Steady growth rate.*
- *Ontario leads the country in scale of its biotechnology industry.*
- *Clusters of expertise in academic and research institutions (hospitals/universities).*
- *Strong government commitment to assist the industry.*
- *Ease of access to the U.S. market.*

## WEAKNESSES

- *Industry is still in its infancy.*
- *Corporate R&D spending and patents are weak by comparison with U.S. competitors.*
- *Strategic partners are needed.*
- *Links between research and business communities are weak.*
- *University community not fully attuned to the industry's needs.*
- *Complex regulatory and licensing environment.*
- *Qualified staff hard to get.*

## OPPORTUNITIES

- *Pharmaceutical industry needs new products.*
- *The health sector needs cost-saving diagnostics and therapeutics.*
- *Ontario universities are moving toward more cooperation with industry, leading to the possibility of strong clusters emerging.*
- *Scientific strengths could attract investment.*
- *Potential exists to develop international strategic alliances.*

## THREATS

- *Many R&D start-ups lack the impetus to convert to commercial success.*
- *Foreign firms may not undertake R&D or product mandates in Canada.*
- *Canadian venture capital sources may be unable or unwilling to respond to companies based on intellectual assets.*
- *Small companies may be unable to achieve commercialization.*
- *Canada's biotechnology industry may fall behind other countries that have more strongly focused national efforts to build the sector.*

## PRIVATE SECTOR HEALTH SERVICES

Separate from the public delivery system that employs more than 260,000 people, health services provided by the private sector include laboratories, consulting, information systems, environmental management, hospital support (such as dietary and housekeeping), distribution, and insurance. Most private health service firms have been established during the last decade and most are Canadian-owned. Data are lacking for many areas of this sector. However, annual Ontario revenues are estimated at \$800 million.

Private laboratories test specimens for diagnostic purposes, conduct radiological examinations, and perform testing and monitoring of environmental health hazards. They employ about 8,000 people. In the fiscal year 1990-91, the Ministry of Health spent \$440 million on services provided by private labs. This amount represented 45% of total expenditure on laboratory services.

Health care consultants offer advice in a wide range of areas, including hospital management, payment systems, and architectural and engineering services. These consultants operate both domestically and internationally. The global market offers important opportunities for export of consulting services. These opportunities will be discussed below.

Several companies offer insurance to supplement the provincial health plan. Other firms, known as third-party payers, act as agents for insurers or employers by managing their drug and health care costs. No estimate is available of employment attributable to the health insurance portion of the insurance industry.

## STRENGTHS

- *Large global market.*
- *Clusters of expertise.*

## WEAKNESSES

- *Segment not well defined or supported by statistical information.*
- *Industry still in its infancy and lacks critical mass.*
- *Few firms have export experience.*
- *Not all Canadian experience is exportable.*
- *Lack of consortiums and export alliances.*
- *Markets in poor countries have needs but not much money.*

## OPPORTUNITIES

- *World Bank and affiliates targeting the health sector.*
- *Special needs of aging populations, new demand for home care and for disease prevention all create new chances for success.*
- *Potential to develop international strategic alliances.*

## THREATS

- *Small companies may be unable to break into export markets.*
- *Success requires cooperation, entrepreneurship and pools of patient risk-taking capital, none of which may materialize.*

## KEY ISSUES IN THE HEALTH INDUSTRIES SECTOR

### THE EXPORT CHALLENGE

The global market for pharmaceuticals and medical devices is more than \$300 billion and rising. Canada accounts for \$7.2 billion of that spending and yet its exports of health care products are a meagre \$480 million, split evenly between medical devices and pharmaceuticals. The net result is a negative trade balance of more than \$2.2 billion.

**"The future for Ontario goods produced by the health industries sector lies in the ability to effectively access international markets."**

**— G. SCOTT**

Such a performance is unworthy of an advanced nation that is both a world leader in health care and the possessor of proven strengths in both scientific research and industrial production. Our huge deficit in health products should be declared unacceptable by all stakeholders. If Ontario can increase

its share of the global market by even a small percentage, the economic benefits to the province will be measured in billions of dollars.

### CRITICAL SUCCESS FACTOR:

- *Improved access to distribution channels to maximize opportunities in export markets for health care products and services.*

### DOMESTIC MARKET SHARE

The Advisory Committee believes that the global market is so promising and so large that it should be our main focus. Nevertheless, it is unacceptable for an advanced industrial nation to possess less than half its own market for health care products. We note with concern that, rather than improving, the imbalance between imports and Canadian-sourced products recently has been getting worse. While it may seem paradoxical, it is because of our focus on exports that we believe Ontario's health products companies need better access to Canadian markets. While notable exceptions exist, in most cases domestic success precedes success abroad. To have the effective launching pad it needs, Ontario's health industries sector must expand its share of its own home market. Steps must be taken to ensure that, as in other countries, the domestic market supports the development of globally competitive companies.

A variety of barriers to the Ontario market currently exist for firms within the health industries sector. These range from the process of the Ontario Drug Benefit program to procurement policies of hospitals. An open,

**"Both hospitals and the health industries are restructuring to be more consumer- and customer-service oriented. We must bring producers, health care providers and consumers together to develop solutions to our common problems. Hospitals and consumers need responsive health industries to improve health care."**

**— T. Closson**

competitive yet supportive domestic market is important, both to give Ontario companies a chance to grow and to attract international investment. Steps are needed to create a level playing field on which Ontario companies can compete.

CRITICAL SUCCESS FACTORS:

- *Removal of market access barriers facing Ontario companies.*
- *Increased market understanding of the value of strategic Canadian/ Ontario*



THE CHIEF ASSETS  
OF THE HEALTH  
INDUSTRIES  
SECTOR ARE  
INTELLECTUAL  
ONES.



down the walls that divide industry, the research community, and the investment community. This will require new attitudes on everyone's part.

Ontario is strong in basic and clinical research. The emphasis of this research is, rightly, on the goals of diagnosing, treating, and eradicating disease, and improving quality of life. Commercial relevance, which is not necessarily in conflict with these goals, is often overlooked. Yet it is critical to attracting private sector support and participation.

*procurement.*

- *Increased domestic market share.*

RESEARCH AND  
INNOVATION

To strengthen the health industries sector, we must break

Ontario must become better at developing technology and at commercializing it. A closer relationship between the worlds of research and industry would benefit both groups. It would result in new challenges for scientists and would also foster the development and growth of new companies. The future wealth of the province depends on its ability to compete in high technology. To do that, we need to introduce the researchers to the developers.

CRITICAL SUCCESS FACTORS:

- *Linkages and networks between all elements of research and industry.*
- *Recognition of the commercial potential of the products of health research and innovation.*
- *Development of a critical mass of Ontario-based companies that are receptive to new research and technology.*
- *Access to information by the research, development, business and investment communities.*

## CAPITAL AVAILABILITY AND THE INVESTMENT ENVIRONMENT

If companies in the health industries sector cannot be profitable in Ontario, they will be profitable somewhere else. In that case, job creation will also take place somewhere else.

As well as general improvement in the investment environment, the health industries sector badly needs more knowledgeable investors as well as investees who understand business realities and practices.

Lack of access to capital is an issue throughout the health industries sector. Companies have difficulty obtaining the financial support they need at all stages of development, although the reasons may vary. Venture capital is scarce and health companies are barely visible on the public markets. For example, they account for less than 0.5% of the Toronto Stock Exchange 300 Index, far less than the sector's share of economic activity.

Because of the scarcity of publicly traded companies, the investment community has little specialized expertise in the health sector. This situation exacerbates the problems of small companies by making it difficult for them to tap public markets to support growth. It also makes it harder to raise money on private markets because it limits the opportunities for potential investors to sell their shares at a later date.

## CRITICAL SUCCESS FACTORS:

- *Fostering by government of a supportive environment for the private sector.*
- *Adequate financing for early stage research.*
- *More venture investors with knowledge and expertise in the health sector.*
- *Better understanding by investors and investees of their respective objectives and needs.*

## HUMAN RESOURCES

The chief assets of the health industries sector are intellectual ones. As an industry based on knowledge, research, and innovation, the sector requires a highly skilled, well-educated workforce. That Canada's education system compares poorly, in international rankings, with those of our competitors is a major competitive disadvantage for the health industries sector. If the industry can't get the people it needs, it will never be able to achieve its full potential. The industry must do a better job of communicating its

**"Educational institutions must be responsive to students to the point of employment, not just to the granting of diplomas. Both industry and these institutions must work together to achieve this goal."**

G. BUCHANAN

needs to the education system and educators must do a better job of meeting those needs.

### CRITICAL SUCCESS FACTORS:

- Development of education programs that meet the needs of the health industries.
- Closer links between the health industries and the educa-

tion communities.

- Attraction of intelligent, motivated people to the sector.

## CREATING A HEALTH INDUSTRIES SECTOR

The sector is fragmented, with little sense of common purpose among the various industries within it. These industries, while they have much in common, are not yet accustomed to addressing issues from a sectoral perspective. The Advisory Committee has begun the work of creating a cohesive health industries sector in Ontario. We recognize, however, that this is a long-term building process. Steps must be taken, once the Advisory Committee's work is completed, to continue it.

### CRITICAL SUCCESS FACTOR:

- Enhanced development and productivity through creation of linkages and networks that foster cooperation and sharing of information.

**"The Advisory Committee process has demonstrated for the first time how many common issues link the various segments of the health industries in Ontario and has provided a unique vehicle to express a common approach."**

L. RUSS

CHAPTER TWO

# WHAT WE PROPOSE

## INTRODUCTION

**T**he objective of the Health Industries Advisory Committee is to foster the growth and development of a globally competitive health industries sector in Ontario.

We do not have such a health industries sector today. While many of the elements of success are present, the connections linking them together are weak. We need to do better at commercializing products of research. We need much closer relationships among researchers, investors, and entrepreneurs. We need better access for competitive Ontario companies, both to their own home market and to export markets. We need a more rational and streamlined regulatory environment and a better understanding by government of the needs, problems, and potential of pharmaceutical and other health industries companies. We need more job-ready young people who understand that the health industries sector is a key component of the new economy and who are eager to play a part in its growth.

The Advisory Committee believes all of these problems are correctable, given a constructive and pragmatic approach by industry, government, and other stakeholders. In this chapter, we will propose a series of initiatives to address the issues we have outlined. Taken together, these initiatives comprise a strategic plan to transform Ontario's health industries sector from a straggler to a pacesetter in the global marketplace.

To get started, we need a Health Industries Sector Council. This organization will oversee the strategy and will carry on the work of building unity and solidarity among the various industries that comprise the health industries sector.

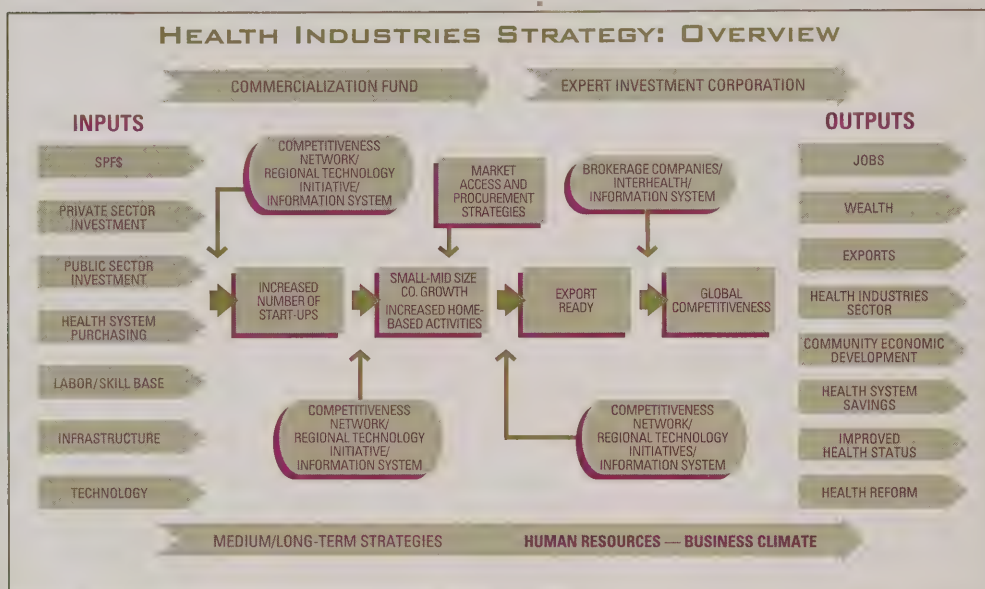
In the early stages, there is a need to connect research and innovation to capital. Start-up companies need an array of services to help them become viable business entities with the potential to generate exports and create jobs. To fill these needs, we propose the Competitiveness Network, the Regional Technology and Innovation Initiative, and the Commercialization Fund. We are

## INTRODUCTION

also advocating a set of human resources strategies to increase the numbers of Ontarians with the skills to obtain high-paying jobs in the sector. Finally, because information is power and because we want to give the health industries sector the power to grow, we propose the Health Information System.

major concern of all companies and we are proposing a number a measures to make the Ontario market more welcoming.

Mature, export-ready companies will also find services and information through the Competitiveness Network and Health Information System.



As shown above, in the later stages of business development, companies need access to different services such as help with regulations in export markets. The Competitiveness Network and the Health Information System will be there to help. Having graduated from the seed capital stage, these companies will now be ready for venture capital, a need that the Expert Investment Corporation is intended to meet. Market access is a

The focus of such companies will be to find ways to get their products to customers who need them, wherever those customers may be. We think that Interhealth and the specialized brokerage companies we envision will be able to play a major role in that process.

## INTRODUCTION

The three major thrusts of this plan are:

1. *The creation of an infrastructure for the health industries sector;*
2. *Improved access to capital; and*
3. *Better access to markets, both domestic and international.*

The infrastructure thrust makes services and information more easily available through such initiatives as the Competitiveness Network, the Regional Technology and Innovation Initiative and the Health Information System. It also includes measures to bolster the industry's human resources. The financial thrust provides better access to funds for companies at all stages of development. Our market access thrust, viewing the domestic market as a springboard to global success, proposes some immediate action while recognizing that certain key problems require further study. The Sector Council will play a pivotal role in coordinating all of these efforts.

We have made every effort to design our strategy to get the greatest possible return on investment. To the extent that we have recommended new organizations, they are very much of the lean variety. Our plan is practical and functional and derives the most benefit out of financial support from across the sector. Taken together, these initiatives will be a powerful catalyst to carry the health industries sector into the 21st century as an agent of economic renewal and creator of jobs.

In the sections that follow, we offer full details of the various proposals that comprise our strategic plan.

## RATIONALE

The work of the Health Industries Advisory Committee is an important first step in the process of building a health industries sector in Ontario. Taking that first step was no easy task. The health industries – comprising pharmaceuticals (brand name and generic), medical devices, private sector health services, and biotechnology – are anything but unified in experience and outlook. The leaders of Ontario's health companies are not accustomed to sector-wide thinking. They are even less accustomed to sector-wide action. Only now, after months of thinking about the issues and debating them, are they beginning to grasp how much they have in common and how much they could benefit from joint action.

Early in its deliberations, the Advisory Committee perceived that bringing a sense of common purpose to this sector was going to be a long-term endeavor. That is why, even before it had devised a final strategy, it established a subcommittee to plan the implementation of a strategic plan for the health industries. This decision was based on the knowledge that many of the issues before the Advisory Committee are sectoral in nature. An ongoing organization, representing the entire sector, is essential to continue the sector-building process and oversee implementation of the Advisory Committee's strategy.

The Sector Council is the Advisory Committee's choice to fill that vital role.

With representation from all stakeholders, the council will be a steering committee for the entire health industries sector. Some of the Advisory Committee's recommendations are ready for implementation. Others require further study. The Sector Council – a results-oriented action group having high visibility and reporting regularly to both the Minister of Health and the Premier – will carry on the process begun by the Advisory Committee.

To be effective, the Health Industries Sector Council must be an energetic advocate of measures to ensure that Ontario becomes a healthy environment in which companies can flourish. A healthy environment for business, in any sector, is a profitable environment. This is stating the obvious but, in the case of the health industries sector, the obvious needs to be stated.

The reason is that Ontario lacks a history of fostering the development of the health industries sector. As a result, investors will be skeptical of pronouncements suggesting government finally understands the equation that states **profits = jobs = a healthy society**. The Sector Council will take the lead in addressing such issues in conjunction with other industrial sectors and with the government.

In its consultations and deliberations, the Sector Council should not omit the most important group of all – the health care consumers whom the

## THE SECTOR COUNCIL

sector exists to serve. Consumers believe that product development is driven by researchers, manufacturers, and health care practitioners with little attention paid to the views of the people who actually use health care products. They need to be part of the information and communication process early, so that they can have an impact on the conception and design of products that are so important to their well-being. The Sector Council can play a valuable role in opening up the lines of communication between consumers and health industries companies.

The decision to recommend creation of a Sector Council was not taken lightly. The sector itself has determined this need. The Advisory Committee has consulted with key associations representing various parts of the health industries and the health care delivery system, including the Ontario Medical Association, the Ontario Hospital Association, the Pharmaceutical Manufacturers Association of Canada, the Canadian Drug Manufacturers Association, Medical Devices Canada, the Industrial Biotechnology Association of Canada, and the Ontario Federation of Labor.

In deciding on an implementation strategy, the implementation subcommittee studied other jurisdictions that have established sector leadership bodies. These included British Columbia, Manitoba, Minnesota, California, New Jersey and Ireland. The Advisory

Committee also agreed on a set of guiding principles for the success of an implementation strategy. According to these principles, the implementation body would:

- *achieve a common direction with government from the outset.*
- *obtain participation by all parts of the sector.*
- *take the lead in implementing the strategy.*
- *be a decision-making body while, at the same time, adopting an advisory role to government with respect to decisions on Sector Partnership funding.*
- *focus on communications within the sector as well as the promotion of the sector to the general public.*

“Non-traditional structures, partnerships and linkages will be necessary for this sector to fully realize its potential as one of the key growth sectors of the next century. Competing industries with divergent interests came to the Advisory Committee table committed at all times to one common goal. The sector will benefit from this solid foundation.”

M. BRUNER

## THE SECTOR COUNCIL

Because the different health industries lack a history of working together, the first task of the Advisory Committee was to open the lines of communication within the sector. An essential task of the Sector Council will be to keep those lines of communication open. It will do this as it continues the work of laying the foundation for the building of an infrastructure to support the health industries

sector. New industry linkages and

cooperative efforts will stimulate continuous innovation, technology transfer, and skills training. These linkages will also accelerate the information flow that guides strategic decisions.

Through the Sector Council, stakeholders will come together to discuss major issues and exchange information, thereby exploiting synergies from the many individual and disconnected projects across the province. The Advisory Committee believes that significant opportunities for building consortiums exist and that these will ultimately strengthen the international competitiveness of the Ontario health industries sector. Such consortiums

can exploit new technologies and

enhance research, development, manufacturing, and distribution of products.

British Columbia has an organization in place that is comparable to the council we are proposing. It operates at arms-length from government and holds a mandate to implement a sector-wide economic development strategy in collaboration with government, industry, the health care professions, academia, and the community.

The B.C. model is the health sector committee of SPARK (Strategic Planning for Applied Research and Knowledge), an initiative of the Science Council of B.C. funded by the B.C. and federal governments. The committee, which has been operating for five years, consists of volunteers representing industry, labor, government, academia, the community, and health service agencies. It has a steering committee and three working groups: medical devices, health informatics, and pharmaceuticals.

The SPARK health sector committee has initiated many consultations, task forces, reports, and workshops involving private companies, academics, researchers, and government representatives. Since the committee's birth in 1988, 51 companies have joined B.C.'s health industries sector, an increase of 52%.

The committee is credited with fostering the creation of the Medical Device Development Centre, a Medical Device Commercialization handbook, and the Pharmacoeconomic and Drug Utilization

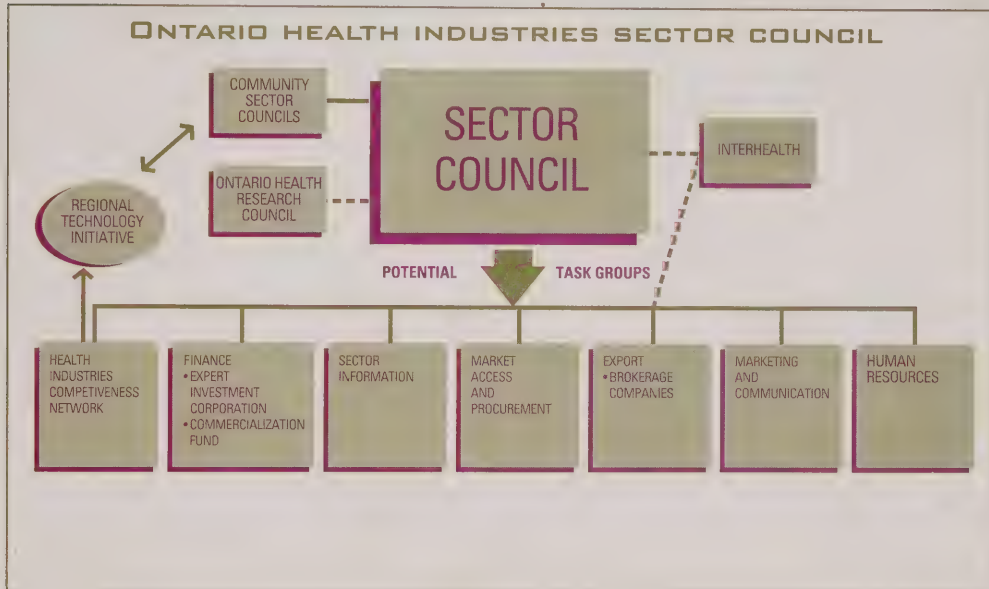
**“Every Ontario citizen – each one of us, our families, friends and neighbors – are consumers or potential consumers of health care products and services. Knowledgeable consumers can be important citizen advocates for the promotion of greater health, wealth and employment in this sector of Ontario’s economy.”**

**A. KING**

## THE SECTOR COUNCIL

project, as well as the B.C. Consortium of Clinical Trials and the Assistive Devices Research and Development project. It has also produced a catalogue of B.C. health products and services.

the medical devices industry, biotechnology, health care delivery, and research organizations. This industry-driven, industry-funded organization is an effective lobbyist for the interests of all health



Most important of all has been the committee's networking activities. These efforts have resulted in new support for the industry from provincial industry and trade agencies, including the Western Economic Diversification Fund, B.C. Trade, Industry Canada, and the National Research Council.

Another initiative worthy of study is "Medical Alley," a trade association supported by the Minnesota health industries sector. Medical Alley is an advocacy organization with a 25-member board representing 210 companies from

industries companies. In building a cohesive health industries sector in Ontario, the leaders of Ontario's health care companies should consider the Minnesota example as a model they might emulate to their benefit in the future.

### RESPONSIBILITIES

The Sector Council we are proposing will be responsible for:

- *overseeing implementation of a health sector strategy.*
- *attracting new business and investment to Ontario.*
- *screening initiatives.*

## THE SECTOR COUNCIL

- *attracting private sector contributions to Sector Partnership Fund projects.*
- *overseeing task groups charged with implementing aspects of the health sector strategy.*
- *developing a communications strategy and marketing plan.*
- *voicing the concerns of the health industries sector in discussions with government on issues affecting the business environment.*
- *facilitating communication between consumers and health industries companies.*

### MEMBERSHIP

The members of the Sector Council will include representatives of the following groups. We have included the names of nominating organizations where appropriate.

- *biotechnology firms (Industrial Biotechnology Association of Canada)*
- *consumers*
- *distribution*
- *education*
- *financial community*
- *hospitals (Ontario Hospital Association)*
- *labor (Ontario Federation of Labor)*
- *medical devices firms (Medical Devices Canada) [2]*
- *pharmaceutical firms (Pharmaceutical Manufacturers Association of Canada, Canadian Drug Manufacturers Association) [2]*

- *research community*
- *member from a related industry*

the following will be ex-officio members:

- *senior official from the Ministry of Economic Development and Trade*
- *senior official from the Ministry of Health*

the following will be non-voting associate members:

- *professional associations*
- *suppliers to the sector*

The Sector Council will also consult, as needed, with people in senior positions within the sector located outside the country. The latter, while not members of the council, will be able to assist it in identifying export opportunities.

The chair of the Sector Council will be elected from among the members. The terms of members will be staggered so that turnover will be gradual.

In those cases where no associations exist to nominate candidates for Sector Council membership, the Advisory Committee will generate a list of names. In all cases, we will look for well-known, credible and committed team players with a talent for strategic thinking. They will be selected as representatives of particular groups but will be expected to use their specialized knowledge, not for any special group, but for the benefit of the province as a whole.

# RECOMMENDATIONS

- *That an Ontario Health Industries Sector Council be created immediately by the Health Industries Advisory Committee to continue the sector building process and lead the implementation of the health industries strategy.*
- *That the sector council be a not-for-profit legal entity having representation from all parts of the sector and operating at arms-length from government.*



## RATIONALE

In recent years, economic theorists have given increased attention to the importance of clusters of economic activity. In the new economy, ideas are the chief generator of growth and wealth creation. Technological change is driven by ideas for new products as well as ideas for new and better ways of making existing products. The most effective way to generate a constant flow of new ideas is to have like-minded people working in close proximity. In the health industries sector, that means having teaching hospitals, universities, and entrepreneurial health products firms all located in the same area.

The five Ontario health sciences centres (Toronto, Hamilton, Kingston, London and Ottawa) already have impressive clusters of teaching and research strength. In an effort to extract the greatest possible advantage from these assets, the London Healthcare Advisory Council and the Ottawa Life Sciences Council have already developed strategies to foster the growth of regional health industries sectors in their respective areas.

To make it happen, both cities need greater dissemination of technology within the business community, stronger links between sources of capital and entrepreneurs seeking to commercialize technologies, and improved access to international markets.

Hamilton and Toronto are now in the process of developing similar strategies of their own. It is hoped other communities will develop such plans for their health sectors.

The Advisory Committee's perspective, of necessity, is a provincial one. But we recognize that the initiatives we are proposing must be delivered on a regional basis. For that reason, the Advisory Committee applauds the pilot work of the London and Ottawa councils. It is most important that stakeholders within communities come together to determine their own priorities. The committee supports the development of community sector councils. Not only will they build a sense of common purpose among the various elements of the health industries sector, but in the future they will be the most effective means for communities to make their views known to the provincial sector council.

A few numbers from Ottawa illustrate why action is required. The Ottawa-Carleton region has outstanding expertise in neurological, cardiovascular and infectious diseases, cancer, implantable and non-implantable devices and information technologies. The area is the site of major federal organizations as well as hospitals and educational institutions.

This is a powerful concentration of research and it is supported with an annual investment of almost \$1.7 billion. Yet this major outlay of research dollars has resulted in the formation of fewer than 20 health-related companies employing only 1,200 people and reaping less than \$200 million in annual sales. The Ottawa Life Sciences Council believes that, given the right catalysts, the life sciences activity in the region should have a much greater economic payback than that. The Advisory Committee agrees.

These initiatives from London and Ottawa reflect the consensus that has emerged in recent years in many industrialized countries on the importance of building support for innovative technology into regional economic development strategies. It is only by building on local strengths that we can achieve the province-wide economic renewal we are seeking.

The Advisory Committee also included Northern Ontario in its consultation process. While the region does not yet have an infrastructure comparable to that found in such cities as London and Ottawa, we are convinced that it can play a significant role in the development of the health industries sector in Ontario. Concerted planning will be needed at the community level. Another promising growth avenue is the development of strategic alliances with communities whose health industries are further advanced.

We believe that the people in the individual communities know best what is needed to help their health industries grow. Each community has different needs and different strengths. For example, elsewhere in the report, we are recommending that Ottawa build on existing strengths to take the lead in establishing the Health Information

**“Regional strategies fit very well into the province’s vision for developing the health industries sector, and we look forward to the challenges as well as to the successes as we journey into the global markets of the 21st century together.”**

J. Aw

System on a province-wide basis. London, with a new convention centre that will be home to the Canadian Medical Hall of Fame, makes a convincing case to be the site of an annual "reverse trade show" in which hospitals can demonstrate their current and future needs to suppliers of goods and services. It will be to the industry's benefit if consumers are also invited to take part in such a show.

The Advisory Committee is impressed with the initiatives that have been developed by the sector leadership in London and Ottawa. Their ideas have considerable merit. It will be the task of the Sector Council to ensure that all such initiatives are coordinated as part of an overall provincial strategy and to ensure that any duplication is avoided. Where these criteria are met, financial assistance should be provided in cases where

community and private sector money is available to match provincial contributions.

**"Over the last few years, municipalities such as Sudbury, Ottawa, London and Hamilton have recognized the importance of economic diversification to future development. I believe the work of the Advisory Committee will provide concrete, viable strategies to continue their efforts at the local level."**

S. PECZENIUK

# RECOMMENDATIONS

- That the Sector Council work with the Ottawa Life Sciences Council and the London Healthcare Advisory Council to ensure that their initiatives are consistent with the provincial strategy and the requirements of the Sector Partnership Fund and to coordinate appropriate regional and provincial funding for their initiatives.
- That the Sector Council encourage other communities to create strategic plans for promoting the development of the health industries sector as part of their economic development plans.

# RATIONALE

Health research in Ontario plays a critical role both in advancing health goals and in building the health industry. However, our spending on health research lacks an overall strategic direction. This puts the province at a disadvantage as it works to build a flourishing health industries sector in the province. Other jurisdictions already have organizations to focus research spending and maximize its benefits. In Canada, these jurisdictions include Quebec and the five western provinces, all of which have provincial health research councils.

The absence of an Ontario Health Research Council means that Ontario is not playing on a level field. At the federal level, Ontario is unable to obtain the full benefit of federal programs and funding. Nor can it influence federal decisions on the direction of health research.

The largest portion of federal health research funding comes from the Medical Research Council whose strategic plan emphasizes collaborative partnerships with industry, provincial governments, and voluntary organizations. The Advisory Committee notes with interest that the Medical Research Council supports formal provincial health research councils.

An advisory committee under the leadership of Dr. John Dirks of the University of Toronto examined some of these issues in its submission to the Ontario Ministry of Health in November 1992. This committee, with participation from the research community, industry, labor and consumers, recommended the creation of an Ontario Health Research Council.

In addition to representing Ontario's interests, an Ontario Health Research Council would advise the government on research issues, foster excellence in health research, and enhance the commercialization of products of health research.

# RECOMMENDATION

- *That an Ontario Health Research Council be established to provide strategic direction for health research spending in Ontario and that the Ministry of Health address this need in collaboration with the sector council.*

## RATIONAL

The Health Industries Competitiveness Network will be a catalyst to stimulate sector growth. It will provide access to information and a wide range of other services to the research, development, business, and investment communities. In part, the Competitiveness Network will be a facilitator, helping its clients make contact with other organizations or people in the health industries sector.

The Competitiveness Network will work closely with industry, government, and professional organizations. It will also work with consumers, assembling focus groups to assess new product ideas and innovations. Where possible, the network will make use of existing information, expertise, and services. Although the Competitiveness Network will be a provincial resource, it will rely on community satellites to provide services in various parts of the province. These satellites will have considerable autonomy to determine their own priorities.

## KEY OBJECTIVES

- *To respond to market demand by fostering prototype and product development by research institutions and companies of all sizes.*
- *To respond to new technologies by matching them with companies eager to develop innovative products.*
- *To provide access to information, which is the key to small company growth and large company diversification.*

## GUIDING PRINCIPLES

- *Investment in intellectual rather than physical assets through the creation of a network of alliances and partnerships with existing public and private sector organizations. (Such a network is sometimes called a "virtual organization.")*
- *Focus on high value-added products and services whose competitive advantage is based on innovation.*
- *Encouragement of a fertile environment for the creation and growth of as many ideas and companies as possible.*
- *Use of the intelligence and innovation of the various groups within the sector to develop collaborative, system-wide solutions to problems.*
- *Emphasis on the use of information technologies.*
- *Focus on the development of export markets.*

## TARGET MARKET

- *Small to mid-size medical devices and pharmaceutical companies seeking expertise in marketing or management, information, financial linkages, or strategic alliances.*
- *Multinationals, in both the medical devices and the pharmaceuticals industries, seeking to diversify and develop innovative new products.*
- *Biotechnology companies needing marketing intelligence, strategic alliances, and financial linkages.*
- *The research community, when in need of strategic alliances, market information, and financial linkages.*
- *The investment community, when in need of due diligence and alliances.*
- *Health services organizations seeking supplier information, partnering, and test-sites.*

## DESCRIPTION OF SERVICES

The Competitiveness Network will provide a wide range of services, including access to information, organizations, and people as well as more direct assistance to companies. The Network will work closely with industry, government (both federal and provincial), trade associations, professional associations, and organizations such as ORTECH in providing these services. Wherever possible, the network will use existing services and existing sources of information and expertise.

The network will help developers of new products by facilitating access to financial services and advice on patenting, market assessment, and on-site evaluation of new technologies. While its own staff will not be expert in all areas of health technology, the network will be able to link companies and individuals to highly specialized outside experts on an ad hoc basis as required. These experts will have intimate knowledge of the state of the art in their particular fields and will be able to evaluate proposals in the light of that knowledge. They will be able to forecast market needs three to five years hence.

Access to such credible expertise, while ensuring protection of intellectual property, will enable the investment community to invest with confidence in the health industries sector.

The Competitiveness Network will support the commercialization process by helping companies get access to help in licensing, business planning, technology assessment, and legal matters.

**"Small companies are the job creators, but they need help to reach critical mass. Where this help is available only from large competitors, small companies can be buried. We need a support mechanism to help small companies succeed."**

**R. TAYLOR**

The Competitiveness Network will also help connect companies to providers of financial services, including potential funding sources. In addition, it will offer guidance on government programs and information on financing for export sales. Marketing assistance will include domestic and foreign market intelligence and a showcasing program. The network will also provide information on domestic and foreign regulatory requirements and facilitate alliance building among health companies.

**“Ontario needs to cultivate entrepreneurial companies capable of developing innovative medical products for exploitation internationally.”**

A. FURLONG

the sector. The permanent staff will be augmented by senior and junior industry practitioners through executive exchange programs, secondments, and in-kind contributions. Such programs will encourage the development of closer ties among industry, academia, and the investment community, as well as being a training ground for entry-level practitioners or those being groomed for more

senior positions. The Competitiveness Network will improve their career skills by exposing them to all facets of the sector.

### IMPLEMENTATION

The Competitiveness Network will be implemented in phases, with recommended pilot sites including London, Ottawa and Toronto. Other potential sites can be added should private sector need and financial commitment be demonstrated.

### STRUCTURE

The Sector Council will be the board of directors of the Competitiveness Network, charged with evaluating the return on investment to the sector of the network's activities and ensuring client responsiveness and accessibility. The regional councils will establish local priorities and report to the Sector Council.

### FUNDING

Government support for this initiative, through the Sector Partnership Fund, must be matched by the sector with a goal of making the Competitiveness Network self-funding. The network's revenues will come from fees for service, sponsorship, annual membership fees, and in-kind contributions. Where possible, funding will also be obtained from other federal and provincial agencies.

### BENEFITS

- *Expedites product development and approval.*
- *Provides market information and expertise.*
- *Helps companies improve in such areas as management, export readiness, and alliance-building.*
- *Facilitates partnerships and alliances.*
- *Develops domestic and export opportunities.*
- *Facilitates access to all government programs.*
- *Fosters development of new companies as well as growth of existing small and mid-sized ones.*

## RECOMMENDATIONS

- *That a Health Industries Competitiveness Network be established to stimulate sector growth by providing access to information and a wide range of services to the research, business, investment and purchasing communities.*
- *That the Competitiveness Network initiative be implemented in phases, with pilot sites including Toronto, Ottawa and London. The Sector Council, working with local representatives of the sector, will co-ordinate the development, implementation and operation of the Competitiveness Network.*

We want to see more Ontario research transformed into innovative health care products. We believe the way to achieve this goal is by:

- *Identifying and fostering promising health research in its early stages.*
- *Facilitating the emergence of clusters of research activity so that creative collaboration can take place.*

The Regional Technology and Innovation Initiative is designed specifically to focus on early-stage research – to get more such research developed and to get it developed more quickly.

If we can achieve that, all concerned will benefit – researchers and institutions will receive increased support for their work, health care consumers in Ontario and elsewhere will have quicker access to new therapies and technologies, and many Ontarians will have new jobs.

Linkages are the key – both among different research institutions and between the research and business communities. By making these connections stronger, we can focus on developing common health economic goals among the research community and the community at large. We can also gain more access to private sector funding to support early-stage research and we can make more productive use of such funds. By developing broad and intricate networks of relationships and alliances, we can promote the sharing of resources that already exist. And, because the sum is

greater than the parts, we will be able to extract more value from these resources.

Most important of all, the cross-fertilization that takes place as a result of interaction among researchers, developers, and entrepreneurs will spark ideas – ideas that might never have been born had people been working in isolation. And ideas, it must always be remembered, are the basic raw material that drives the new economy.

To put this initiative into effect, we propose that the Sector Council engage three senior people, one to be located in each of the pilot sites of Toronto, Ottawa and London. Each would have expertise in medical devices, pharmaceuticals, biotechnology, or some other area of the health industries sector. Such expertise would vary, depending on regional priorities. These three will facilitate the development of clusters of organizations with common economic development goals. They will also make every effort to ensure that new

“The province of Ontario has a very fertile research environment. The potential for the enrichment of both the economy and the health care system is enormous. It is a sin of omission not to seize the opportunities for the commercialization of research.”

H. KUNOV

science and technology is made available to Ontario companies for development.

The Regional Technology and Innovation Initiative will be closely tied to the Competitiveness Network and will use its services where appropriate. In addition, the initiative will work with federal and provincial research bodies and other funding agencies to promote coordination and collaboration and to benefit, where possible, from existing federal funding.

### DESCRIPTION OF SERVICES

- *Early identification of promising technologies or innovations within the research community.*
- *Initial assessment of the commercial viability of such technologies.*
- *Advice to the research community on industry needs.*
- *Evaluation of future technology and research opportunities.*

### TARGET MARKETS

- *Research institutions seeking to commercialize their technological capabilities and products.*
- *Hospitals and practitioners with cost-effective, innovative ideas, services, or products.*
- *Large companies seeking to diversify or develop new products or both.*
- *Small to mid-sized companies seeking increased technological capability and new products.*

Government support for this initiative, through the Sector Partnership Fund, must be matched by the sector with a goal of making the initiative self-funding. Revenues will come from fees for service, sponsorship, annual membership fees, and in-kind contributions. Where possible, funding will also be obtained from other federal and provincial agencies.

### BENEFITS

- *Early identification and evaluation of new, emerging technologies.*
- *More efficiency in commercializing research and innovation.*
- *Fosters development of new companies and stimulates the growth of existing ones.*
- *Encourages collaboration by institutions and promotes program research.*
- *Provides a training ground to develop expertise in technology transfer.*

# RECOMMENDATION

- That a Regional Technology and Innovation Initiative be established to speed up and expand the transformation of research and innovation into development and manufacturing through the formation of efficient and effective technology linkages.
- That the Sector Council oversee the development, implementation and operation of the initiative, which will be closely tied to the Competitiveness Network and implemented in phases, with pilot sites including Toronto, Ottawa and London.

A variety of databases exist containing a wealth of information about the health industries sector. To make all this information accessible to those who need it, we propose to create the Health Information System.

Companies will be able to use the network to get information on other companies, technologies, government programs, and key contacts. This information source will facilitate the identification of potential partners to form strategic alliances, joint venture initiatives, and technology transfer opportunities. As a user-pay system, it would have the additional advantage of generating revenue.

Consumers also need access to information, a need that can only increase with the shift to community-based and home care services. In the years to come, computers will be standard equipment in more and more homes, enabling consumers to have easy access to databases of health information, including services and programs. An information service known as USERNET that gives consumers information on home care products and services is now in use. The Health Information System could help to make it more accessible.

The Health Information System would also provide the following benefits to the health industries sector:

- *Better use of existing resources.*
- *Increased communication across the entire sector.*
- *Enhancement of research and development capabilities in institutions, government agencies, and industries.*
- *Easier access to information on regulatory issues.*
- *Access to information on procurement policies.*
- *Information on government funding programs.*
- *Increased exports for Ontario companies as a result of use of the system by foreign firms and institutions.*
- *Information on post-secondary programs and contacts, career development, training opportunities, symposiums, and other events.*

The Life Sciences Informatics Centre, a project of the Ottawa Life Sciences Technology Park (OLSTP), is now in operation. It links existing databases and other information resources into a readily accessible network. The OLSTP is currently negotiating private sector partnerships with a view to implementing the Health Information System.

The OLSTP has the expertise as well as a functioning electronic network in place. It therefore should assume the lead role in this initiative on behalf of the sector as a whole.

# RECOMMENDATIONS

- That a Health Information System be established to meet the information needs of the health industries sector.
  - That the Health Information System initiative be coordinated by the Ottawa Life Sciences Council and undertaken by the Ottawa Life Sciences Informatics Centre.
- That the council through the Informatics Centre at the Ottawa Life Sciences Technology Park:
    - develop an implementation strategy for the Health Information System and play a lead role in executing it;
    - put in place the physical infrastructure and programming; and
    - address the needs of consumers in the development of the Health Information System and consider the inclusion of USERNET.
  - That the Ottawa Life Sciences Council liaise with the Sector Council to ensure that the information needs of the sector are met by the Health Information System.

The Advisory Committee made several observations early in its deliberations. These observations, which influenced the direction of subsequent work, were:

- Access to capital is a broadly based issue in the health industries sector.
- Companies can have trouble obtaining capital at all stages of development although the reasons may vary.
- The capital market for health companies has at least four distinct segments, which form a continuum: the research and seed stage; the venture capital and development stage; the pre-public and Initial Public Offering (IPO) stage; and the public market stage.
- The availability of capital for health companies in any one of these segments affects the amount available for other segments. For example, the lack of investment activity in the early stage limits the number of companies that are good candidates for investment in the venture capital stage.
- Investors and prospective investee companies do not understand each other's needs and are often defensive rather than collaborative in their mutual dealings.

- *The economic environment in which health companies must attract capital is fundamental to any consideration of investment issues.*

Over \$300 million per year is spent in Ontario on research and development in the medical-health sector. The objective of this R&D is to find better ways to diagnose, treat, and eradicate disease. But such a powerful scientific base should also

be spurring the creation of new knowledge-based companies, the kind of companies on which future wealth creation in Ontario depends.

Currently, we are not getting much economic payback on this major investment in research. The reason is that the links between the research and investment communities range from weak to non-existent.

We have the research and we have the money. What we need is an infrastructure to put the two together. Now, the results of health research are commercialized on an ad hoc, hit-and-miss basis. This is not good enough. If a critical mass of health companies is to develop in Ontario, research with commercial potential must be identified at an early stage and then adequately financed and nurtured.

The two major granting agencies,

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## THE EARLY-STAGE COMMERCIALIZATION FUND

the Medical Research Council and the National Science and Engineering Research Council, both conduct peer reviews of proposed research projects to ensure that such projects have scientific validity. The not-for-profit agencies such as the Cancer Society and the Heart and Stroke Foundation do the same. We need a comparable review capability to assess in advance the commercial potential of research projects.

The experience of a Dutch agency, Technology Foundation, is instructive. It spends \$25 million a year on applied research carried out at universities. It has found that broadly based review panels, which review proposals for their commercial potential as well as their scientific merit, are the most effective.

Other jurisdictions in North America are following the same path. In Quebec, the University of Montreal recently turned over the marketing and manufacturing rights to about \$93 million worth of tax-assisted research to Theratechnologies Inc., a consortium of three biomedical technology and service firms in Montreal. Theratechnologies has filed a preliminary prospectus for a public offering to raise up to \$35 million for development and commercialization of 50 research projects at the university.

In the United States, venture capital funds have been formed to invest in early stage research in Boston, Washington, D.C., and Palo Alto, Calif.

# RECOMMENDATIONS

- That an Early-Stage Commercialization Fund be created with the technical and investment expertise necessary to identify the most promising research projects with commercial potential and provide the capital needed to put such research on a fast track to the marketplace.
  - That the fund work closely with the Regional Technology and Innovation Initiative in prospecting for innovative research, incorporating the knowledge and expertise available in communities where strong capabilities in the life sciences exist, such as London, Ottawa and Toronto.
- That the Sector Council select a “champion” with a supporting team to lead the development, implementation and operation of a strategy for the Early-Stage Commercialization Fund.

## RATIONALE

Ontario needs more investors who understand the health industries sector.

By combining specialized knowledge with capital, the investor can better add value to the companies invested in, thereby enhancing their prospects for success.

Currently, MDS Health Ventures is the only capital pool in Ontario focusing exclusively on the health sector. If the province is to enjoy a vibrant capital market for emerging health companies, other sources of funds must be available.

Focused venture funds with specialized management are common in the United States. HealthCare Ventures in New Jersey, for example, is managed by four partners with long experience in research and development, product development, and management of multinational pharmaceutical companies.

The recent creation of the Ontario Lead Investment Fund, which will invest in new, highly focused venture capital vehicles known as Expert Investment Corporations, provides an opportunity to establish a new venture fund focused on the health industries sector.

The mandate of the Commercialization Fund will be to finance companies during the research and seed stage. The venture fund is a necessary complement to the Commercialization Fund. It takes over in the second stage, once a company has been formed and is ready to grow. At this decisive point, venture capital is needed to inject the funds that will enable a young company to transform research into development.

**“Within an increasingly knowledge-based globalized economy, the importance of knowledgeable, patient venture capital to support the long-term potential of Canada’s high-technology companies, including those in the health industries sector, cannot be overestimated.”**

E. RYGIEL

## RECOMMENDATIONS

- That the Sector Council initiate the establishment of an Expert Investment Corporation (EIC) specializing in the health industries sector to be created under the Ontario Lead Investment Fund (OLIF).
- That the Sector Council take the lead in identifying appropriate sponsors within the sector to develop a proposal and approach the OLIF. Specifically, the council should:
  - establish communications with the Ontario Lead Investment Fund immediately;
  - ensure that a strong proposal for an Expert Investment Corporation is taken forward by appropriate industry sponsors and experienced investment professionals;
  - determine the feasibility of establishing the EIC with the capital support of several major health-related companies; and
  - discuss with the Ontario Medical Association its plans for a labor-sponsored venture capital fund and determine the compatibility of such a fund with either the Commercialization Fund or the EIC.

## GENERAL ISSUES

Market access is an issue of overriding concern to the Ontario health industries sector. Researching, developing, manufacturing and marketing a product is a costly process. If a company cannot get its product to market in a timely, cost-efficient manner, its survival may be threatened. Smaller companies are especially at risk.

Different market access barriers are faced by different industries within the sector. Medical devices companies face a number of barriers, including the prevalence of product bundling. Pharmaceutical companies must comply with the Ontario Drug Benefit program and the Drug Formulary. Biotechnology companies face new and changing rules as regulatory bodies attempt to navigate uncharted ethical and scientific territory.

A domestic market that is at once open, competitive, and supportive is in the public interest. It bolsters our companies as they strive to become globally competitive and it helps attract international investment. The signing of the North American Free Trade Agreement and the recent agreement by the signatories of the General Agreement on Tariffs and Trade (GATT) exemplify the global movement toward open markets. This global trend makes it all the more imperative that we seek to remove unnecessary internal market barriers.

Market barriers are undesirable because they prevent good products and services from reaching consumers who

need them. Many Canadian companies with innovative, potentially world-beating products do not have the clout to overcome such barriers. Yet without access to their home market, these companies cannot acquire the experience and credibility they need to compete in the wider world. Other jurisdictions foster strong health industries sectors with policies that ensure domestic companies are well supported at home.

In collaboration with industry, government leadership (through the Ontario Drug Benefit program, Assistive Devices program, direct government purchasing, and influence over health care institution purchasing) can play a significant role in reducing barriers and creating a level playing field on which Ontario companies can vigorously compete. We must also eliminate the systemic restrictions that hamper many Ontario companies, especially smaller ones.

To develop a market that provides reasonable access for Ontario companies, we need to assess the total, system-wide

**"Hospitals can play an important role both as a major consumer and as sophisticated test sites for the development and showcasing of Ontario products thereby contributing to a supportive domestic market."**

G. TURNER

## MARKET ACCESS AND PROCUREMENT

costs and benefits of policy and purchasing decisions. In the current economic climate, price is the primary concern of purchasers and payers throughout the health care delivery system. This response is to be expected when managers are forced to choose among cuts in staff, equipment or supplies.

But an exclusive focus on price is a short-term solution that creates longer-term problems. Failure to assess benefits other than low price will result in purchases of commoditized products that could raise other costs, reduce outcomes, or both. In such an environment, innovative Canadian products will not have the chance to develop and will not be available in the future to reduce costs and improve outcomes.

### PROCUREMENT

Consistent with emerging concepts of health, we must take a holistic view of the role of procurement within our health care system. To serve the public interest, purchases made with public funds by public institutions must maximize the benefits to society.

Studies show that people with jobs tend to be healthier than those without. That being the case, it is reasonable to expect publicly funded hospitals, which exist to maintain the good health of the

people who live in this province, to work with industry to support competitive domestic products. By doing so, they create jobs and foster the good health of Ontarians. The failure of these institutions to support the domestic industry reduces tax revenues, thereby increasing the provincial deficit and impairing the government's ability to support the health care system.

Ontario lives by trade and the

Advisory Committee certainly does not advocate closing our borders to imports. Even if such an action were possible, it would not be desirable because the health care system requires a multitude of different products and no one region can supply all of them. Nevertheless, the Advisory Committee holds the view that Ontario-based companies can and should supply more than 40% of their own home market.

This opinion is hardly original. For example, we know that the managements of most hospitals agree with it because 70% of them have "Buy Canadian" policies. Yet Ontario's 233 hospitals rely on imports for 60% of the \$1.1-billion worth of supplies they purchase annually. This massive dependence on imports hurts our economy and deprives

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thousands of people of jobs. If the \$620 million in products currently imported were made here instead, the result would be 4,400 manufacturing jobs, as well as significant R&D activity.

Why do the hospitals say one thing and do another? One reason is that they are under great pressure to keep costs down. Another is that only 7% of hospitals have a mechanism to implement their well-meaning Buy Canadian policies. It is one thing to know that something should be done but it is another to do it. We believe it's time that good intentions were translated into action.

We need a process, followed by all publicly funded facilities, that identifies and eliminates the barriers keeping Ontario firms out of publicly funded institutions. If a revised institutional procurement system can be shown to benefit both the domestic industry and the hospitals, it should be expanded to all publicly funded institutions, such as homes for the aged and corrections institutions.

A hospital-led task force supported by the Ontario Hospital Association (OHA) has prepared a preliminary design for a hospital purchasing cooperative to make the procurement system both more efficient and more supportive of economic development.

The task force's objective is to expedite the implementation of modern procurement practices in cooperation with industry. If implemented, the governance of the cooperative would be shared among the hospitals, industry and the government.

As part of an overall review of the procurement system, attention must be paid to the issue of product bundling. Some distributors of imported hospital supplies require purchasers to accept a "bundle" of products in order to gain access to a particularly sought-after product. This practice has the effect of limiting access by domestic companies to the hospital market.

Yet another procurement issue is that

of identifying domestic products.

Hospitals and other publicly funded health institutions cannot be expected to

buy domestic products if they don't know which ones are in fact domestic. In an age of multinational corporations and cross-border alliances between

manufacturers, this is not always easy to do. We need a system to measure the true Canadian content of products.

Establishment of such a system will have the important added benefit of raising the awareness of economic development issues throughout the sector. Purchasing managers of health care facilities need an on-line directory containing up-to-date information about

**"Sales of Ontario products by Ontario companies helps the overall economy. Hospital procurement policies should make it easy, not difficult, for them to buy our products."**

A. FURLONG

domestic products, services, and companies. Existing directories do not differentiate between products with high, low, and no Canadian content.

As part of procurement reform, the province should encourage foreign-owned multinationals operating in the Ontario market to pursue more R&D that could lead to world product mandates for globally competitive products.

### PHARMACEUTICAL ISSUES

The pharmaceutical industry is going through a difficult period in many of the industrialized countries. Challenges include increases in R&D costs and taxes, efforts at cost-containment, and restructuring of health systems. Most notably, health care reform will greatly change the basis on which the industry competes in the United States.

Within Canada, at both the federal and provincial levels, the industry is subject to restrictions, delays and duplication that serve neither its interests nor those of the health care system. Pharmaceuticals are a vital component of medical treatment and can contribute to cost reduction and health care reform. Their role should be validated and supported for the benefit of the health care system and the public. In view of the challenges facing both the pharmaceutical industry and the health care system, it is time to find joint, "win-win" solutions to mutual problems.

### REGULATORY DUPLICATION

It takes more than three years for a new product submission to complete the federal review process, much longer than in Canada's major trading partners. Once approved, a new drug often faces additional barriers at the provincial level, where drug plan sponsors, seeking to lower costs, restrict market access. For provincial assessments to be done, drug companies must make separate submissions, which either duplicate federal requirements or involve slight variations. The extra paperwork is often costly and time-consuming to prepare.

### ONTARIO DRUG BENEFIT PROGRAM

Restriction on market access for drug products comes in a variety of forms, including mandatory substitution, product de-listings, therapeutic class de-listings and new product freezes. These practices have arisen in an ad hoc manner as a result of the government's need to cut health care costs quickly.

A further concern is the absence of transparency in the approval process. Once a submission is made to the drug plan, manufacturers have difficulty obtaining information on the state of the review. Pharmaceutical companies have limited opportunities to add information that might influence decisions.

Additionally, the economic impact on a manufacturer of approval withdrawals is not taken into account. The end result is an unstable market environment that makes planning difficult and limits the potential of Ontario's pharmaceutical industry.

### PHARMACOECONOMICS

Pharmaceuticals are a cost-effective tool in the prevention and control of illness when used appropriately. Any successful attempt to reduce institutional care is likely to result in increased reliance on pharmaceuticals.

The growing field of "pharmco-economics" involves the assessment of the costs and outcomes of the use of different pharmaceuticals as well as the comparison of pharmaceutical treatments with alternatives. Competition is no longer just drug vs. drug. Pharmacoeconomic assessments will allow policymakers to determine the optimal composition of the health care system and the size and roles of its parts.

However, as a result of the current provincial financial and organizational structure, Ministry of Health staff cannot take into account the savings that might result in health care institutions through an increase in outpatient treatment, reduction in requirements for other health care services, or other savings as a result of the use of a new drug product. Financial and organizational structures must be made flexible enough to evaluate

and act on the assessments of the costs and consequences of drug therapy that pharmacoeconomics will bring to light.

### SUMMARY

The pharmaceutical industry has been a prosperous part of the Ontario economy with a strong infrastructure. Current pressures provide both threats as well as the opportunity to forge new relationships with government that can help to develop a fair, competitive market, contribute to health care reform and promote the creation of high value-added jobs. Given Quebec's aggressive stance in attracting pharmaceutical investment, it is imperative that Ontario industry and government promptly address these issues.

## RECOMMENDATIONS

- That providers (buyers) and insurers (payers) evaluate total, system-wide costs and benefits during procurement processes with a view to promoting greater participation by Ontario health industries companies.
- That the province support the development of a hospital procurement system based on the principles of removing market barriers for Ontario health industries companies, increasing employment, and reducing costs for the domestic industry and the hospitals.
- That the Sector Council take the lead in developing an institutional procurement system with concurrent goals of procurement reform and promoting the accelerated development of Ontario health industries.
- That the Sector Council examine appropriate mechanisms and lead a strategy to eliminate the practice of product bundling where it inhibits the participation of Ontario health industries in the health care market.
- That the Sector Council undertake extensive consultation with industry, publicly funded health care organizations, including hospitals and nursing homes, and other stakeholders to develop a means of measuring the true Canadian content of health products and services.
- That the Sector Council, in conjunction with trade associations and other stakeholders, lead the development of an on-line directory of Canadian and Ontario products and services that will provide purchasing managers of health care organizations with up-to-date information about domestic products, services and companies.
- That the Sector Council spearhead the creation of a pilot program to identify, assess and develop opportunities to compete more effectively in markets currently served primarily by imports. In doing so, the focus should be on promoting the growth of globally competitive Ontario health industries.
- That the Sector Council develop mechanisms to increase the domestic market share of Ontario companies. In addition, that the council immediately initiate an aggressive campaign consisting of:
  - statements by the Minister of Health and other senior government officials stressing the importance of buying Ontario goods and services;
  - communication of the “Buy Ontario” message to purchasing managers and department heads;
  - urging hospitals and other institutions to establish and monitor voluntary targets; and
  - forums bringing key industry and health care decision-makers together.

# RECOMMENDATIONS

## PHARMACEUTICAL ISSUES

- That Ontario take a lead role in promoting the development of a harmonized federal/provincial regulatory system.
- That, within a harmonized system, the federal government have the exclusive authority to evaluate the safety, efficacy, quality and interchangeability of a drug product.
- That the Sector Council facilitate industry and government to develop an improved process under the Ontario Drug Benefit program that is fair, stable, transparent, consultative and timely and that incorporates economic impact assessments.
- That trade-offs between drugs and other treatments be evaluated on a system-wide basis and utilized in Ontario Drug Benefit program decision-making processes. To facilitate this practice, national pharmacoeconomic guidelines need to be developed.

## EXPORT INITIATIVES

### BACKGROUND

The overriding need to rise to the export challenge gives a focus to building a strategy for the health industries sector. To thrive, the Canadian industry must export its products. It will have to break into countries where it now has little or no share of the market. While this will not be easy, the dynamic nature of the health business makes it relatively receptive to new players. Health care systems everywhere need new products, new technologies, and new ways of doing things. Canadian companies will succeed to the extent that they can respond to the needs of these systems with innovative products that are well made and effectively marketed.

Successful exporters will be aware of the specific conditions in each market they enter. For example, population aging is more advanced in western European countries and Japan than in Canada. These countries are also engaged in cost containment, with new emphasis on home care and disease prevention. In the United States, a complex new national health system is now under construction. All of these developments have important implications for sellers of health care products and services.

Less industrialized and developing countries have other needs. These include planning and management of health care services, construction of new facilities, and organization of basic health care delivery programs. These needs present an opportunity for Ontario to export the expertise that has enabled it to create, support, and maintain its own health care system.

### SERVICES: INTERHEALTH

The Advisory Committee is pleased to note that Interhealth, an important initiative to increase Ontario's export capacity in the health industries sector, has been approved.

Interhealth is a public-private partnership to facilitate exports of health care consulting services. It will operate as a general contractor, bringing together multi-disciplinary teams of private sector product and service firms, public sector experts, and not-for-profit agencies to bid for international projects.

The opportunities are significant. During the past two years, the World Bank and its affiliated agencies, the regional banks, and the United Nations have committed \$6 billion to the health care sector, for projects ranging in size from \$100,000 to more than \$300 million. And this market is projected to continue growing at a rapid rate over the next four years. In a typical project, 10% of the total cost would be paid for consulting services.

## EXPORT INITIATIVES

Interhealth has the enthusiastic support of the Advisory Committee. We see it as a creative way to get increased benefit from resources that already exist in the province. Ontario could not have built its own excellent health care system without developing expertise in such areas as hospital management, public health programs, health information systems, and health care service delivery programs.

To this point, we have not had a large degree of success in exporting this expertise. Collectively, our consulting firms have the necessary range of experience and skills to meet international challenges. But few of them have know-how in all the areas necessary to assume very

large projects. In the past, these firms often have engaged in futile competition with each other. Interhealth will facilitate collaborative efforts that will result in increased exports of Ontario expertise.

Strengthening Ontario's international health consulting industry will result in economic growth for the province. As Interhealth bids on major projects, it could offer a full range of

products to support the front-end work of the consultants. The consulting contracts would thereby provide an opportunity for the provincial health industry to better position its products for the export market, generating new wealth and employment.

**"The growth and innovation that marked the past two decades of health care in Ontario have resulted in the development of a strong consulting community. There is a hunger for these skills in the international arena, which can only be accessed through the creation of a vehicle to bring together these skills and market them on a competitive basis. Interhealth is that vehicle."**

G. SCOTT

# RECOMMENDATIONS

- *That the province and Sector Council support the ongoing efforts to establish Interhealth.*

## EXPORT INITIATIVES

### PRODUCTS: BROKERAGE COMPANIES

We need a quick and effective way for small companies with good products to cut through the distribution maze and get their products into foreign markets.

Exports are the lifeblood of companies making the highly specialized technology characteristic of leading edge firms in the health industries sector. For such companies, exports often represent 90% or more of total sales.

One proven way to succeed is to use the services of a person who combines expertise in a particular product niche with intimate knowledge of markets and extensive contacts among key purchasers. As an example, an experienced purchasing agent for a specialized American hospital chain would have both well-developed skills and immediate access to the required distribution channels. But it is not possible for small companies to afford the services of such a person on an exclusive basis. And yet these companies often lack access to the distribution channels they need.

The solution, the Advisory Committee believes, is for small companies within particular product niches of the health industries sector to join forces, with the support of the Sector

Partnership Fund, to share the services of an experienced broker who would reside in the market targeted by these companies. Such a person, in addition to selling Ontario-made products, will provide valuable feedback from customers to help our companies improve their existing products and create new ones.

We need to get things moving now because our trade deficit in health products is simply not acceptable.

We cannot study this problem indefinitely. We have to act.

The brokerage idea is a short-term strategy for increasing exports. It will be the job of the Sector Council to identify product niches that already have a reasonable number of export-ready products.

Neonatal or

**“To become a dominant exporter of health care products and services, we need access to international distribution channels – the brokerage company initiative can provide that access.”**

**M. GREENBERG**

## EXPORT INITIATIVES

emergency care are examples of possible niche areas. That done, the council would proceed to hire the broker who would then begin immediately to act as the agent of those companies making financial contributions to the project. We envision about five such projects starting quickly. These would be pilot projects. If they worked well, more would follow.

A long-term export strategy requires further study. Developing such a strategy will be a top priority of the Sector Council. It will also be the task of the council to coordinate product-exporting initiatives with the activities of Interhealth, our service exporter.

Additional brokerage companies may be able to work with Interhealth to create other niche market opportunities. The development of a trading house to represent the health industries sector exclusively is another idea worthy of consideration by the Sector Council.

In the meantime, the Competitiveness Network and the Health Information System will be able to assist Ontario companies wanting to export by providing access to research and market information. And the Sector Council should be active in publicizing our export success stories.

## RECOMMENDATIONS

- That the Sector Council promote the establishment of several brokerage companies to assist Ontario health industries to penetrate international markets. In the establishment of each brokerage company, the council will:
  - identify a product niche in which Ontario has existing strengths; and
  - group Ontario product companies together and, with Sector Partnership Fund support, hire a highly qualified senior person and staff to act as broker on their behalf.
- That the Sector Council develop a long-term export strategy to include, among other elements:
  - close ties between the service-exporting activities of Interhealth and product-exporting initiatives; and
  - a clear definition of access to markets, including the establishment of a trading house(s) to represent the products of Ontario health industries.

# RATIONALE

Some 300,000 people, enough to populate a large city, work in health care in Ontario. Of these, 260,000 work in the delivery system and the rest in the four main subsectors – pharmaceuticals, biotechnology, medical devices, and health services – of the health industries sector.

The Advisory Committee believes that these people have more in common with each other than they realize. To exploit the synergies that exist among this large workforce, we propose creation of a Human Resources Initiative under the leadership of the Sector Council. Its objective would be to:

- *Identify training needs and facilitate upgrading of health industry workers, either through subsidizing existing programs or providing new ones.*
- *Encourage the development of new co-op, field placement, and apprenticeship programs in consultation with other sectors and the Ministry of Education and Training.*
- *Provide information, via the Health Information System, about all existing programs.*
- *Share information on recruitment through the Health Information System.*
- *Create an electronic specialty skills bank to be stored on the Health Information System.*
- *Project future human resources needs based on health care trends, including technology and epidemiology.*
- *Foster movement of workers between the delivery system and the health industries.*

## HUMAN RESOURCES

To grow and prosper, the health industries sector must attract highly skilled, highly qualified, and highly motivated workers. To that end, all industrial sectors must take more interest in education, and educators must take more interest in industry. We note that, in the medical devices industry, Germany enjoys an annual trade surplus of \$1.6 billion while, in the same industry, Canada has a deficit of almost the same amount. It is no coincidence, we suggest, that Germany has the world's most highly developed apprenticeship system while Canada's is negligible by comparison. The German apprenticeship system is a joint effort of schools and industry. It reflects a social attitude that all young people, including those not headed for university, have much to contribute to society and can have prosperous careers if they get the right training at the right time.

If we are serious in Ontario about creating high value-added, high-paying jobs, we must improve our education system as well as our apprenticeship and other training programs. This will be a long-term goal of the Sector Council, in conjunction with other industrial sectors, government, and educators.

Much closer links are needed between the industry and the educational institutions. The health sector needs employees with good basic language, computer and mathematics skills as well as individuals with specialized skills. To be globally competitive, the industry will also need multi-disciplinary workers with a broad understanding of the sector.

To attract bright young people, the industry needs to sell itself at both the high school and post-secondary levels.

Currently, students rarely think of the health industries as a place to look for challenging, rewarding careers. The phrase "health sector" invokes images of jobs in hospitals and other parts of the delivery system rather than careers in a high-tech industry.

**"Many organizations are only now learning the competitive importance of lifelong education and training. Excellence in training affects the bottom line in a global economy."**

**B. PATTERSON**

## RECOMMENDATIONS

- That the Sector Council take the lead in developing a Human Resources Initiative that will:
  - identify training needs and facilitate the upgrading of health industries workers;
  - provide information from the Health Information System about all programs;
  - share recruitment information in the Health Information System;
  - create a specialty skills bank to be stored within the Health Information System;
  - project future human resources needs based on health care trends, including technology and epidemiology; and
  - foster movement of workers between the delivery system and the health industries.
- That, in order to ensure an adequate skills base for the health industries sector, the Sector Council undertake the following initiatives:
  - intensify and foster the partnerships and linkages that already exist between health industries and educational institutions;
  - encourage the development of multi-disciplinary programs to meet specific needs of the health industries; and
  - encourage one institution to take the lead in coordinating the specialized education, training and upgrading programs that are required by the health industries sector.
- That the Sector Council, in consultation with other sectors, educational institutions and the Ministry of Education and Training, encourage the development of new co-op, field placement and apprenticeship programs.
 

In particular, that the Sector Council take the lead in sponsoring, along with other industrial sectors, a public forum to allow industry to express its needs to the education community and government on formal education and lifelong learning.
- That, as part of its overall communications activities, the Sector Council develop and promote specific initiatives that will raise the profile of the health industries sector to students, parents, the education community, and members of industry.

## CHAPTER THREE

# A VISION OF THE FUTURE

**B**y the year 2004, the health industries sector will be one of Ontario's major exporters. The province will be home to at least six major, technology-driven health products companies. These companies will do extensive R&D here in their home base; they will employ thousands of highly skilled, highly paid workers; and they will ship millions of dollars worth of products to the United States, Europe and Asia. They will work closely with health care consumers in Ontario who will be the first to benefit from the new products and therapies developed in the province.

The Advisory Committee has tried to assess the impact of its health strategy on the future of the sector. We recognize that forecasting is a hazardous enterprise because, in the late 20th century, the future has a way of being very different from the past. That is especially true in the health industries, a sector based on innovation and rapidly developing new technologies.

We can, however, say with certainty that the health industries sector will grow. By how much? Assuming that our strategy is fully implemented, we expect that, by 2004, total shipments of the Ontario pharmaceutical and medical devices industries will increase considerably from the current \$3.7 billion. Depending on market

developments, that increase will be somewhere between \$1.8 billion and \$4.2 billion. Ontario's share of the world market would be in a range from 1.4% to 2.2%. The result would be between 18,000 and 41,000 new jobs.

Through a focused economic development effort, Manitoba has been able to increase the number of health industries companies in the province by almost 200% over the last five years. Minnesota's cross-sectoral Medical Alley initiative has resulted in a medical devices employment growth rate double that of the state average. As a result, Minnesota has a medical devices industry almost twice the size of Ontario's but with only half the population. There is no reason Ontario cannot equal and surpass the success of other jurisdictions.

It must always be remembered that the new economy is a fast-moving world. Microsoft, a multi-billion-dollar company, is the largest software producer in the world. Yet in 1978, it consisted of only 11 youthful computer hackers with far more energy and ambition than money. The point of this example is that in the new economy, big things can grow quickly out of small beginnings. Ontario's health industries sector in 2004 will be home to hundreds of innovative yet embryonic companies. A sectoral infrastructure,

including access to information and funding, will be in place to help them. Maybe one of them will become the Microsoft of the health industries sector in the 21st century.

By 2004, companies in the health industries sector will be an important presence on Canadian stock exchanges. The baby boom generation will put billions of dollars of its savings into equities during the 1990s, a large portion of which will flow to companies in the health industries sector, helping them grow. Mutual fund companies will offer funds specializing in the sector. As a result of all this activity, a cohort of knowledgeable analysts will follow the activities of Ontario's health companies closely.

Further assisting the development of the sector will be a new spirit of cooperation with government. With no loss of public safety, the regulatory process will be faster, smoother, and more efficient. Costly duplication will be eliminated.

The links between the sector and the research community will be close and mutually profitable. Ontario research will be transformed into Ontario products that are recognized around the world for their quality and leading-edge technology. Scientists and engineers from around the world will look to Ontario health companies and universities for challenging employment.

By 2004, Ontario companies will be working closely with the high schools and post-secondary institutions on apprenticeship and co-op programs. A steady flow of well-educated young people will graduate from these institutions and move into challenging jobs in the health industries sector.

Ontario's trade deficit in health products will be a distant memory. By 2004, the province will enjoy a healthy surplus instead.

As a result, thousands of new jobs will have been created. The occupants of those jobs will go to work each day knowing that their efforts are helping to make it possible for people all over the world to overcome illness and disability and to live productive lives.

For that reason alone, the development of a flourishing health industries sector is a worthy objective and one that deserves our full attention. If we fail, the health industries sector will be a contributor to continued economic decline and reduced living standards. If we succeed, the sector will make a major contribution to building a society that is both healthy and wealthy.



# APPENDIX A

## STRATEGIC INITIATIVES: COST SUMMARY

### PRELIMINARY ESTIMATES THREE-YEAR TOTAL

Competiveness Network (3 Pilots)	\$ 4,500,000
Regional Technology and Innovation Initiative (3 Pilots)	1,700,000
Health Information System	1,200,000
Market Access and Procurement	900,000
Community Health Economic Development	2,500,000
Brokerage Companies (5)	4,000,000
Sector Council	300,000
Human Resources	500,000
Early- Stage Commercialization Fund	300,000
<b>SUB-TOTAL</b>	<b>15,900,000</b>

SPF Contribution Required	7,950,000
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Interhealth	\$ 7,000,000
(SPF contribution of up to \$ 3.5 million announced 11/93)	

<b>GRAND TOTAL</b>	<b>\$ 22,900,000</b>
<b>(ALL HIAC INIATIVES)</b>	

## APPENDIX B

### HEALTH INDUSTRIES ADVISORY COMMITTEE

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President and CEO  
Markham Stouffville Hospital

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National Representative  
Communications, Energy and Paperworkers Union of Canada  
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The Hugh MacMillan Rehabilitation Centre

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Institute of Biomedical Engineering  
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President  
Torcan Chemical Ltd.

#### **Bonnie Patterson**

Dean, Faculty of Business  
Ryerson Polytechnic University

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Assistant Executive Director,  
Nursing  
Sudbury General Hospital

#### **Laurence Russ**

Vice-President, Medical  
Research and Development  
Ortho-McNeil Inc.

#### **Edward Rygiel**

President  
MDS Health Ventures Inc.

#### **Graham Scott**

Partner  
McMillan Binch

#### **Graham Strachan**

President and CEO  
Allelix Biopharmaceuticals Inc.

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President  
Livingston Healthcare Services  
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**Gerald Turner**

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CUPE – National

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Private Practice (Dental)

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Nursing Home Operations  
Extendicare Health Services

**Osama Sherif**

Chief Operating Officer  
Dynacare Laboratories

**Paul Sulkers**

Managing Director  
Health Technology Management

**John Winston**

Manager, Economic  
Development Office  
City of London

**Bob Yeo**

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**INTERNATIONAL  
CAPABILITIES  
WORKING GROUP**

**CHAIR**

**Graham Scott**

Partner  
McMillan Binch

**MEMBERS**

**John Ayling**

Manager, Export Services and  
Americas Trade Section  
Ministry of Economic  
Development and Trade

**Alan Backley**

Senior Principal  
Resources Management  
Consultants Ltd.

**David Batey**

Administrator  
Lac-Mac Ltd.

**John Cowan**

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Everest & Jennings

**Leslie Dan**

Chief Executive Officer  
Novopharm Ltd.

**Peter J. Dawes**

Senior Partner  
Warrington International Import  
Export Trade Consultants Inc.

**Roger Ferland**

Director General,  
International Business  
Program Bureau,  
External Affairs and  
International Trade Canada

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Managing Partner  
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Eli Lilly Canada Inc.

**Pierre Leduc**

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**J. Mark Lievonen**

Senior Vice-President  
Commercial Operations  
Connaught Laboratories Inc.

**Margaret MacDonald**

Manager, Strategic Alliances  
Digital Equipment of  
Canada Ltd.

**Leslie Motta**

Manager, Marketing and  
Communications  
ISG Technologies Inc.

**John O'Grady**

Consultant  
John O'Grady Consulting Ltd.

**Maureen Sabia**

Chairman of the Board  
Export Development  
Corporation

**Skip Schwartz**

Principal  
Norr Partnership Ltd.

**RESEARCH AND  
INNOVATION WORKING  
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Research Institute

**MEMBERS****John Apsimon**

Dean of Research  
Faculty of Graduate Studies and  
Research  
Carleton University

**Earl Bryenton**

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**Arthur Carty**

Dean of Research  
University of Waterloo

**Ken Clark**

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GE Canada Inc.

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Director, Centre for Biomaterials  
University of Toronto

**Ian Shugart**

Executive Director  
Medical Research Council of  
Canada

**Duncan Sinclair**

Vice Principal, Health Sciences  
Dean, Faculty of Medicine  
Queen's University

**Edward Snell**

Co-ordinator, Rehabilitation  
Technology  
Bloorview Children's Hospital

**Mike Spino**

Vice-President  
Scientific Affairs  
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**Graham Strachan**

President  
Allelix Biopharmaceuticals Inc.

**Dawn van Nostrand**

National Staff Rep  
CEP, Communications, Energy  
& Paperworkers Union of  
Canada

**Michael Walcroft**

Vice-President, Project  
Management  
Connaught Laboratories Inc.

**Martin Walmsley**

Director  
Technology Ontario

**Karen Wensley**

Partner  
Ernst & Young

**Roger White**

Medical Director  
SmithKline Beecham  
Pharma Inc.

**Brian Wilson**

Head, Department of Clinical  
Physics  
Ontario Cancer Institute

**CAPITAL AVAILABILITY  
AND INVESTMENT  
WORKING GROUP****CHAIR****Tony Pullen**

Managing Partner  
Yorkton Securities

**CONSULTANT****Mary Macdonald**

Macdonald & Associates

**MEMBERS****Martin Anstee**

Vice-President, Common Stock  
Security Investments  
Department  
The Prudential Insurance  
Company of America

**John Brady**

Manager, Investment Strategies  
and Marketing  
Ministry of Economic  
Development and Trade

**Richard Cornwall**

Assistant VP – Venture Capital  
Federal Business Development  
Bank

**Tom Dea**

Associate  
CIBC Wood Gundy Capital

**Bob Dickie**

President  
Spark Innovations Inc.

**John Goudey**

Partner  
Ernst & Young

**Jim Hall**

Vice-President, Investment  
Working Ventures

**Kenneth Lawless**

Bioscience Development Officer,  
Economic Development Office  
City of Ottawa

**Stan Martin**

Vice-President  
S/W Ontario Region  
Canada Trust

**Alex McKinnon**

Research Associate  
United Steelworkers Association

**Sydney Pugh**

President  
Millenium Biologix

**Bob Shoniker**

President  
Shoniker & Associates Inc.

**Calvin Stiller**

Chief-Multi Organ Transplant  
Service  
University Hospital

**Murray Watson**

Chairman and CEO  
Pharma Patch

**Mark Weisdorf**

Vice-President and Director  
Investment Banking  
Wood Gundy Inc.

**HEALTH INDUSTRIES  
STRATEGY PROJECT  
TEAM****Joel Abelson**

Project Manager

**M. Constance Hearty**

Consultant

**Tina Pichler**

Consultant

**Mahil Senathirajah**

Consultant

**Kim Fairney**

Administrative Co-ordinator

**Sangita Shah**

Administrative Co-ordinator

**Daniel Stoffman**

Writer

**OTHER PARTICIPANTS****Shelley Acheson**

Health Sector Training and  
Adjustment Panel

**Dyanne Adam**

Laurentian University

**Gabrielle Adams**

National Research Council

**Carolyn Armstrong**

Imutec Corporation

**Hugh Armstrong**

Ontario Federation of Labor

**Jim Banks**

Hospital for Sick Children

**Brian Barber**

University of Toronto

**Martin Barkin**

Deprenyl Research Ltd.

**Pierre Belanger**

Dynacare Laboratories

**Jose A. Blanco**

Inco Ltd.

**Barry Boatman**

Hamilton Renaissance Project

**Keith Bowman**

Ernst & Young

**Lucy Brun**

Agnew Peckham & Associates

**Dennis Bryant**

Medical Devices Canada

**Thomas Brzustowski**

Premier's Council on Economic  
Renewal

**Joe Buchshriber**

Ortho-McNeil Inc.

**Diane Bull**

Ontario Public Service  
Employees Union

**Jim Busch**

Ontario Physiotherapy  
Association, Sudbury  
Regional Group

**Brad Buxton**

National Pharmaceutical Study,  
Health Canada

**Peter Cameron**

Kodak Canada Inc.

**Gordon Campbell**

University Hospital

**Michael Caughey**

Ottawa-Carleton  
Research Institute

**Nancy Chertow**

Ingram & Bell

**Virginia Cirocco**

Livingston Healthcare  
Services Inc.

**Albert Clarke**

Queen's University

**Mark Cox**

Ministry of Health

**Milan Crepp**

Adult Day School

**Katherine Crewe**

Cyex Medical Technologies Inc.

**Peter Croden**

The Upjohn Company of  
Canada

**Norman Crone**

Dunlop Farrow Inc.

**George Cunningham**

MDS Laboratories

**Margaret Currie**

Medigas Inc.

**Joseph Dadson**

Medionics International Inc.

**Vern Dale-Johnson**

Medtronic of Canada Ltd.

**Ron Davidson**

Apotex Inc.

**Derek Davidson**

Boehringer Ingelheim  
(Canada) Ltd.

**Peter Dawes**

Warrington International Import  
Export Trade Consultants

**Raisa Deber**

University of Toronto

**Dick Destefano**

Northern Ontario  
Teleconference Network

**Christian Dube**

Cardio-Med Supplies Inc.

**Steve Elder**

Victoria Hospital

**Gerald Elvy**

Creative Carrier

**Vince Ennis**

Technilab Inc.

**Henry Enns**

Canadian Hospital  
Specialties Ltd.

**Susan Fenton**

Syntex Inc.

**Fred Fiksel**

HTC Associates

**Bian Foody**

IOGEN

**Brian Foster**

Health Canada

**Larry Found**

Medtronic of Canada Inc.

**Steen Frandsen**

Certified Management  
Consultants

**Jim Freisen**

Hospital for Sick Children

**Michael Gagne**

Sarnia General Hospital

**Gordon Gow**

Ministry of Economic  
Development and Trade

**Neil Graham**

Bank of Montreal

**John Guyatt**

Hugh MacMillan  
Rehabilitation Centre

**Sonya Halvorson**

Digital Equipment of  
Canada Ltd.

**Vanessa Hammond**

Canadac Services Ltd.

**Cameron Hicks**

MDS Laboratories

**Blaine Hobson**

Genus Medical Inc.

**Rowland Hope**

Atkinson Tremblay &  
Associates

**Ron Hosking**

ADI Diagnostics Inc.

**Don Hovis**

Genus Medical Inc.

**Richard Hunt**

Chedoke-McMaster Hospitals

**Paul Huras**

Thames Valley District Health  
Council

**Elaine Hykawy**

Ministry of Education and  
Training

**Edward Jamieson**

Caremark Ltd.

**Fred Janzen**

Medtech International

**John Jaworski**

Industry, Science and  
Technology Canada

**Gerry Jeffcott**

Pharmaceutical Manufacturers  
Association of Canada

**Frank Johnson**

University of Ottawa

**Kathleen Jordan****Boyd Kalnay**

QSI Medical Corporation

**Anna Keeler**

Baxter Corporation

**Wilbert Keon**

University of Ottawa Heart  
Institute

**Colleen Kingston**

Nestle Canada Inc.

**Rick Kirchner**

Johnson & Johnson Medical  
Products Inc.

**Walter Kornelson**

Schukra of North  
America Ltd.

**Jacques Labelle**

Ottawa General Hospital

**Louis Lamontagne**

Ottawa Life Sciences  
Technology Park

**Jim Lavell**

Ottawa Civic Hospital

**Dennis Lawson**

JanDen Management Inc.

**Barbara Linds**

Ontario Public Service  
Employees Union

**Steve Long**

Becton Dickinson Canada Inc.

**Val Lunski**

Dupont Canada Inc.

**Nick Ma**

Ontario Training and  
Adjustment Board

**George Massarella**

Sudbury General Hospital

**Mary Catherine McCarthy**

Ontario Council of Hospital  
Unions

**Terry McCool**

Eli Lilly Canada Inc.

**Cal McDonald**

Ministry of Northern  
Development and Mines

**Ron McDonald**

Sudbury Regional Development  
Corporation

**Mark McElwaine**

Ministry of Health

**Chris McEvenue**

Drug Trading Company Ltd.

**Brian McKay**

Brian McKay & Associates

**Arnold McLean**

Johnson & Johnson Medical  
Products Inc.

**Judith Meeks**

Hamilton St. Peter's Hospital

**Susan Menzies**

University of Ottawa Heart  
Institute

**George Michaelszyn**

Industry, Science and  
Technology Canada

**William Midgette**

Bard Canada

**Paul Montador**

Amsco Canada Inc.

**Garth Moore**

Laidlaw Technologies Inc.

**Peter Morand**

Natural Sciences and  
Engineering Research Council  
of Canada

**Michael O'Keefe**

The Toronto Hospital

**Patrick O'Sullivan**

Heart Health

**John Park**

Baxter Corporation

**Anne Parker**

Ontario Training and  
Adjustment Board

**Theo Peridis**

York University

**Gino Picciano**

Ottawa General Hospital

**Raymond Pong**

Laurentian University

**Saad Rafi**

Ministry of Economic  
Development and Trade

**Alain Raoult**

Janssen Pharmaceutical Inc.

**Michael Rashitnyk**

Department of Foreign Affairs  
and International Trade

**Vince Rizzi**

Warner-Lambert Canada Inc.

**James Des Roches**

Drug Trading Company Ltd.

**John Rogers**

MDS Health Group Ltd.

**Cary Rothbart**

Obus Forme Ltd.

**James Rowan**

Warner-Lambert Canada Inc.

**David Sands**

Homewood Hospital

**Liliana Sanda**

Sectoral Liaison Secretariat  
External Affairs and  
International Trade Canada

**Joe Seliske**

Welland County General  
Hospital

**Neil Sentance**

Ministry of Economic  
Development and Trade

**Fraser Shien**

Hugh MacMillan  
Rehabilitation Centre

**Vicki Smith-Danilyw**

Sudbury Social Planning  
Council

**Emanuel Somers**

Physical and Life Sciences  
Institute  
National Research Centre

**Jackie Spayne**

Allelix Biopharmaceuticals Inc.

**Jon Syzmanski**

Sunnybrook Health Science  
Centre

**Joanna Taylor**

Cambrian College

**Florence Tessier**

Federation des femmes  
canadienne-francaises  
Section de Sudbury

**Richard Tobin**

Medical Devices Bureau  
Environmental Health  
Directorate

**Paul Tosolini**

Sudbury Regional Development  
Corporation

**Fernando Traficante**

Cabinet Office

**Y-Lan Tran**

Torcan Chemical Ltd.

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Custom Orthotists of London

**Gerry Turcotte**

Ottawa-Carleton Research  
Institute

**Margaret Wagner**

Committee for Independence in  
Living and Breathing

**Tom Wagner**

Committee for Independence in  
Living and Breathing

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University of Toronto

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